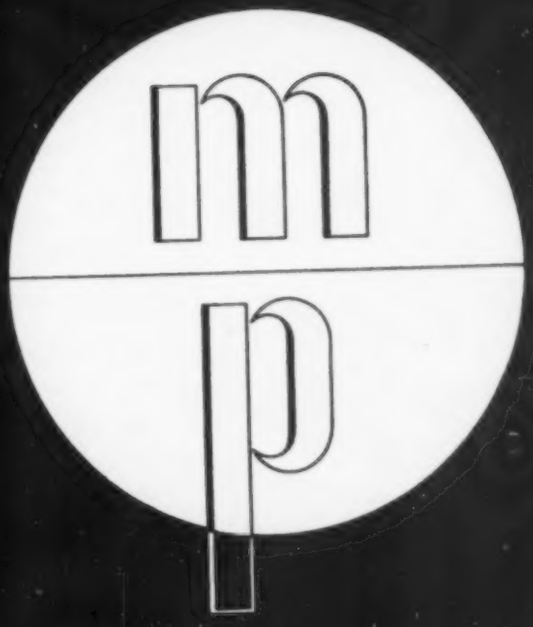
MODERN PLASTICS



MAY 1935

Enduring Finish . . . Light Weight

Simplified Production

Resistance to Acid

★ Combined in new Durez case for electroplating unit

Hanau Engineering's new electroplating unit makes dent plates by depositing metal on impressions of the patient's gu Transformers, control units, ammeters, cathode and anode termin are housed in the molded Durez case.

The Durez finish on the molded case is long-wearing, permanently-glossy, and pleasant to the touch. It will not disfigure with hard use. The Durez finish is part of the piece, not applied. Even splashover from the acid electrolytic bath will not eat away its smooth lustre.

The Hanau case is 12" high, 15" long and yet light in weight. Durez is lighter than any metal, and has the structural strength to assure long life of the unit.

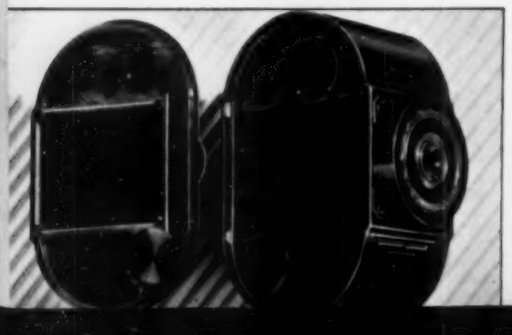
The molded housing eliminates many production operations. No special insulation is necessary, because Durez' dielectric strength guards all electrical contacts from short circuiting. The complete case is produced in one molding operation.

The same qualities which make Durez the ideal material for the Hanau case also make it most economical and practical for typewriter masks, adding machines and instrument cases, building hardware, electrical appliances and display stands. You, too, can improve your product with Durez. For further information write General Plastics, Inc., 355 Walck Road, North Tonawanda, N. Y.

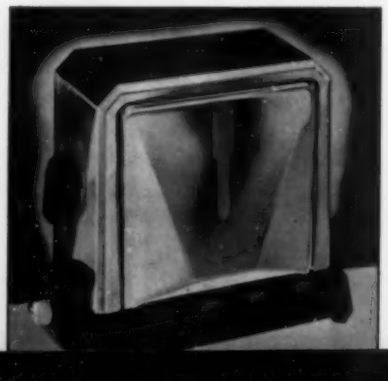
DUREZ

THE MODERN MOLDING COMPOUND

The new Varsity Camera is molded of black Durez. The large unit is produced in a single molding operation, complete with all grooves, holes, film compartments and decorations. Such elimination of production operations simplifies manufacture, and makes possible the low retail price of 39c and fast, profitable turnover. Molded by Northern Industrial Chemical Co.



This new Proctor and Schwartz toaster is a fine example of modern design. Tech-Art Plastics molded the base of heat-resistant Durez because temperatures of 400° will not affect its attractive glossy finish.



This foot control unit on the Davis Bovie Diatherm machine requires a material that can take the toughest punishment . . . so they selected Durez. It will keep that clean, neat appearance for years despite continual rough treatment. Why? Because Durez won't chip, peel, or crack . . . the surface finish is the material itself. Durez dielectric strength eliminates special insulation.

MAY 1935

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MODERN PLASTICS

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RESINOX CORPORATION

(SUBSIDIARY OF COMMERCIAL SOLVENTS CORPORATION AND CORN PRODUCTS REFINING COMPANY)

MANUFACTURERS OF SYNTHETIC RESINS AND VARNISHES

PLANT
EDGEWATER, N. J.

NEW YORK CENTRAL BUILDING
230 PARK AVENUE
NEW YORK, N. Y.

TELEPHONE
VANDERBILT 3-9300

April 29, 1935

Mr. [redacted]

Dear Mr. [redacted]

I want to thank you for the opportunity to answer the two questions asked in your letter of April 27th. You inquire:

(1) Does Resinox resist water and alcohol?

The answer to this question is a most decided "Yes." It is this ability of Resinox molding compounds to resist the action of water and alcohol which has made Resinox so popular in the molding of bottle closures, especially those bottles designed to contain alcoholic beverages.

(2) Is there any danger of a Resinox molded container swelling or warping out of shape?

The answer to this question is "No." Containers molded of Resinox will not distort in the presence of moisture.

In this connection we are sending you, under separate cover, a screw-top cosmetic box molded of Resinox. Notice, please, the charming two-color effect but particularly observe how snugly the screw-top fits on the base. Fill this container with cold cream or any cosmetic containing a high percentage of moisture and let it stand for a few weeks. Note that the screw-top turns just as easily as it did when the container was empty. No binding - no warping or swelling of either the container or the top.

If you will be kind enough to let us know what you have in mind for Resinox we shall be glad to recommend the exact type of Resinox molding compound most satisfactory for your needs.

Very truly yours,

L C Gabriel

CLG:M

President

P. S. We should be glad to have a member of our technical staff call upon you if you so desire.

RESINOX
Molding Resins • Molding Compounds
Laminating Varnishes

MAY 1935

MODERN PLASTICS

BRESKIN AND CHARLTON PUBLISHING CORP.

VOL. 12 No. 9

"GIVE US FACTS"

says Ely Jacques Kahn

An interview by Dock Curtis

CONSIDERING the present relationship of synthetic plastics to architecture, Ely Jacques Kahn concludes:

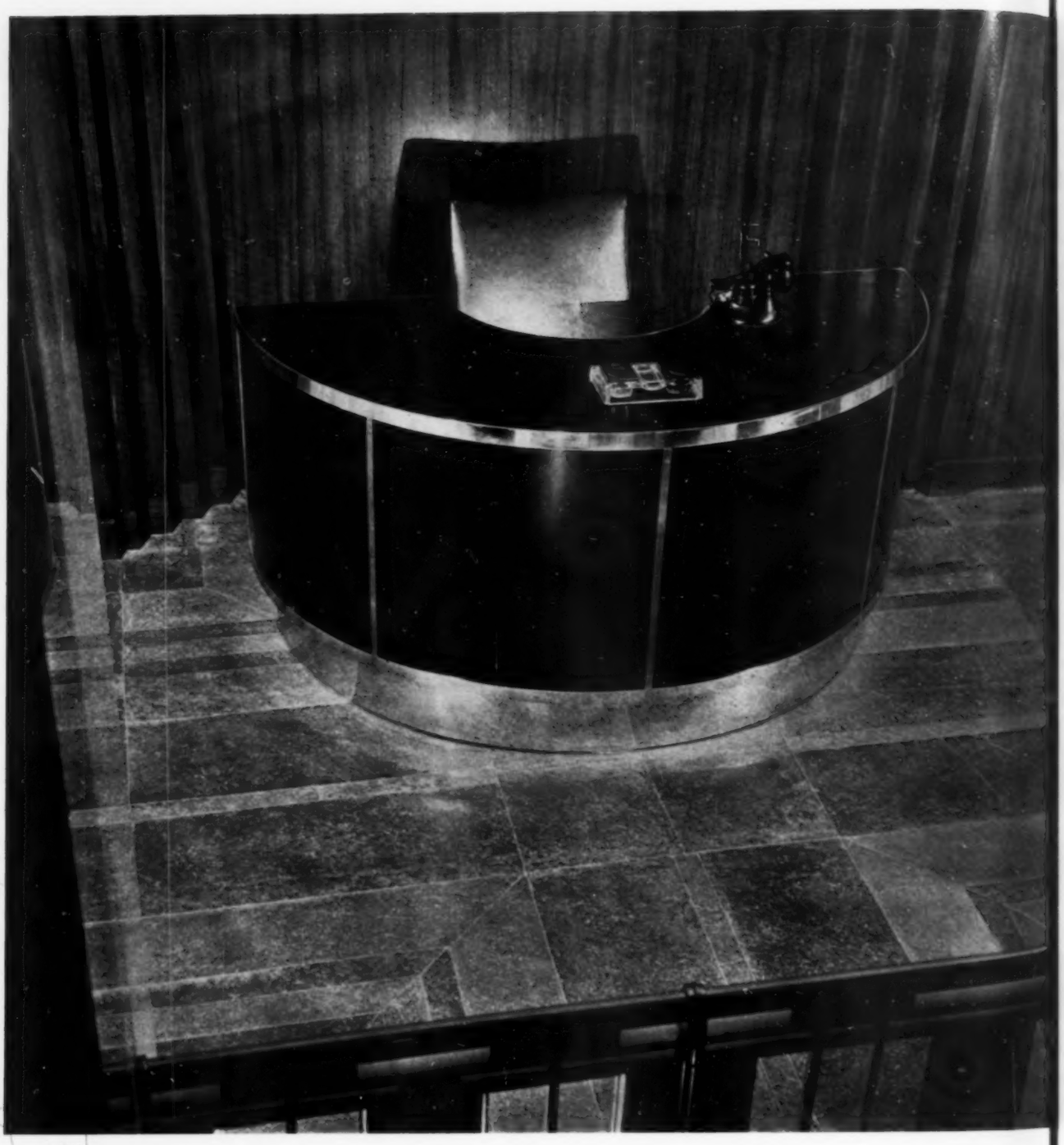
1. They constitute a building material whose inherent merits are worthy of development and application.
2. They are not, but should be, adequately promoted.
3. There is an immediate market available for the developed material.

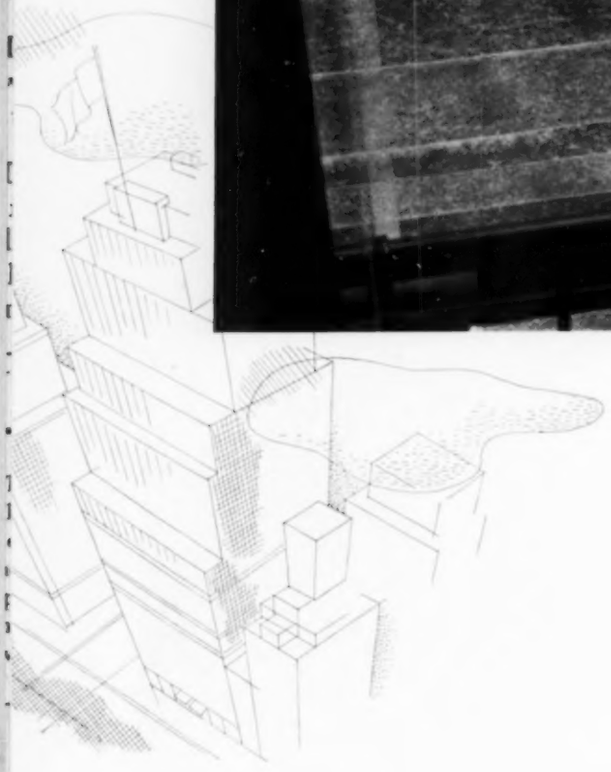
The reputation of Mr. Kahn is threefold. In an extensive and varied practice he has achieved a reputation for designing buildings that "work," that is, function to the satisfaction of those who use them and which are sound as financial projects. He is an avowed modernist. Thirdly, having designed everything from compacts to factories, he is known to be a seasoned designer and an authority on design.

His views on synthetic plastics therefore are important from all three angles. There is one further point that can be made, for the benefit of those who do not know Mr. Kahn personally: he is one of those rare people who never procrastinate. He has a disconcerting habit of immediately putting ideas into action. He is not given to day dreaming. He has an amazingly acute perception of what can be done—and is worth doing—and what cannot. Wherefore in the seemingly abstract ideas he frequently presents, there is usually the germ of immediate practical development.

As the hard-headed practical architect of commercial buildings, Mr. Kahn is not satisfied that synthetic plastics have been developed far enough so that they can be used generally as building materials. This he sums up in a terse statement—"I don't know enough about them:

Ely Jacques Kahn





Reception desk, general offices, E. R. Squibb & Sons

The reception desk was built of black plastic laminations and chromium on the theory that the rounded form desired could best be handled in these substances. It has proved to be very satisfactory

Window display for Yardley products

In displays of this nature the discussion arose as to the possibility of illumination. The idea was discarded because of the possible breakage of glass. Cast phenolics would in all likelihood have proved satisfactory. The white painted surfaces are subject to damage and might also have been discarded for a white plastic material provided that costs were not appreciably more

they have not been adequately promoted." In short, he does not believe any material is ready for use unless someone can and has demonstrated that the following conditions have been realized:

1. The material can be had when wanted.
2. Its color and quality are uniform.
3. Its cost is comparable to competing materials.
4. The time required for preparation and installation is reasonable and definite.
5. The financial set-up of the manufacturer is adequate.
6. Examples of successful installations are available.

It is Mr. Kahn's point that no one as yet has offered him this information. Therefore he feels that their promotion is an important factor in any discussion of synthetic plastics. "It is curious that, with a real interest in new materials, I find that actually I have used little of synthetic plastics. To be sure, switch plates, door knobs, elements in electrical equipment have been used, but in the broad category to whch reference has been made, practically nothing. The reason is simple. An architect expects to find that a manufacturer has carried his own investigations of his goods far enough so that a designer can recommend a product to his client without fear of proposing too hazardous a choice. The owner will want to see how it looks in place, a difficulty of course, if the material is still in an experimental stage of development. The designer, in the consideration of products for a building, expects the producer to know how to apply the work properly and to have had experience in building operations.

"For publicity reasons, an owner can always be interested in new materials, but the architect is expected to vouch for them. In architectural practice, the main obstacle to the use of a new material has always been the manufacturers themselves—not the owners. But few clients are willing to be the first to try out a material—they want an actual example to look at."

In promoting Transite, the Johns Mansville Company met this problem most competently. In 1933 a repre-

★

Lobby, Richard Hudnut Building

Another instance where, without sacrifice to the design, plastic materials might have been used had their possibilities been demonstrated. Their application to lighting fixtures, ornaments, table tops and accessories would unquestionably have been considered. As it stands now, cleaning of metal brings complications and breakage of glass has been reasonably constant

★

Hairdressing room, Richard Hudnut Building

Washable wall materials of varied and attractive designs were required. Could this or similar designs have been obtainable in a plastic material, with the additional advantage of permanency, it undoubtedly would have been given serious consideration. The same plastics might also have been used rather than glass shelves under which panels of the fabric were used

Main floor, Bonwit Teller Building

As in the Yardley show room, a surface to replace wood, which is subject to damage by contact with perfumes and normal handling of display, would be a great boon. Another interesting factor is that in the arrangements of the show windows themselves, where varied color combinations are desirable, some material such as cast phenolics or laminated plastics would be an excellent background or flooring

Lobby, Commercial Building

An interesting fact about this corridor is that there is no wet work in its finished construction, no plaster, no paint. The ceilings are marble and structural glass through which light is diffused. There is, again, no reason why, in place of glass, some resinous material might not have been used—and would have been lighter in construction and more easily adjusted to the problem in hand. Sign boards and direction boards also permit of adaptation to plastics not only for color variety but for practical reasons of upkeep, flexibility and price

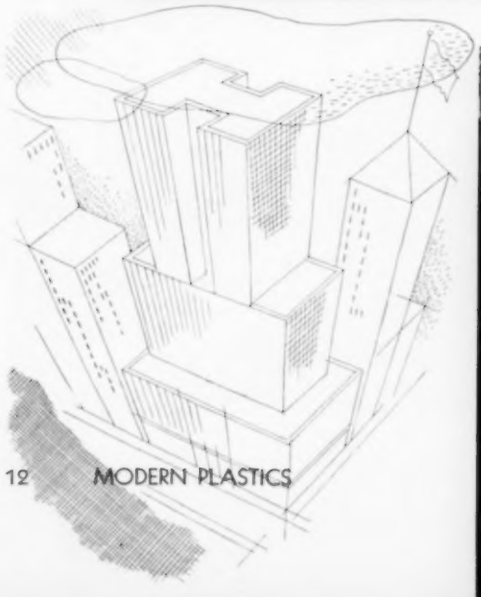
Foyer in private apartment, 211 Central Park West

The effect was obtained by placing narrow strips of wood on canvas painted to the selected color. An interesting treatment could have been obtained by the use of plastic strips, permitting a great variety of color without the use of paint which is impermanent and difficult to match in redecoration

sentative of the firm called on Mr. Kahn, stated the case and showed him a wall section which completely showed the structural features of the material. He was immediately interested. Subsequently they worked out with him, again as a promotional measure, their building in the Chicago Century of Progress, in which their product was thoroughly demonstrated. In addition, the experiment was made of using Transite as the base for a mural painting by Leo Katz. The whole promotion was a successful publicity move.

As a result, when certain problems arose on a brewery for Jacob Ruppert, where partitions were desired which could be changed and reused, Transite was discussed as a possible solution and it was a simple matter to demonstrate its advantages to the client. Not only were the Fair buildings well known, but the Johns Mansville Company have complete sample installations in their show room with sections showing the construction. As a further result, when problems developed on a recent job for Yardley Company, where aesthetic qualities were quite as important as practical ones, Transite again was introduced. In neither of these instances was cost of major importance, although obviously, it is always an important factor.

This illustrates what a manufacturer can do to introduce his own product. But manufacturers are not always so farsighted or so thorough. To cite a contrary instance, Mr. Kahn, visiting Paris in 1925, saw an



interesting piece of work in which an unfamiliar material was being used. Inquiry brought forth the fact that it was a synthetic resin called Macrolacque and had a New York representative. Some time later, back in America, Mr. Kahn had occasion to consider the material for a job, and called the New York office, only to be referred to the Du Pont Company. Du Pont, however, was extremely foggy about it. Obviously Mr. Kahn reverted to standard materials.

Again in 1926, Mr. Kahn discovered structural glass being used in Berlin, proceeded to investigate its use both in France and Germany and upon returning to America was instrumental in organizing a company to produce it. Subsequently in an effort to save time and eliminate wet work in the lobby of the Commerce Building, he introduced a structural glass ceiling—a successful installation.

"Discussion of synthetic plastics, in my judgment, is analogous to consideration of any of the newer materials that have been added to the architect's list of materials. It is obvious that before a material can expect serious consideration, some promotional steps must be taken. If the end in view would seem to justify the preliminaries, some educational propaganda is necessary. Some one must sense how to present the material and explain various uses, restrictions and costs. If there are successful installations, the architect would like to know about them, how they were built, comparative costs and the like. One's memory is short and a product that seems to be considered unimportant by its backers can hardly stir men who have the wide choice of a world market.

"Synthetic plastics, in my opinion, do merit promotion since both in practical and in aesthetic respects they are particularly adapted to housing projects. There is no question but that the housing situation is becoming acute—that it is one architectural development in immediate view—that planned housing presents problems, for the solution of which new materials will be required. Housing plans have progressed to the point where it is extremely pertinent for the manufacturer of a new material to state his case. (*Continued on page 60*)

Bathroom exhibits, Kohler Building, Chicago Century of Progress

In the selection of materials for various Kohler exhibits, every possible variety of wall surface was used—pressed steel, tile, glass, linoleum, wall papers, paint, rubber, ceramic tiles—multi-colored glass and marble. This indicates an obvious situation when plastics would have been used promptly, with advertising value to its manufacturers, had information been available

Jay Ackerman

Jay Ackerman was born in Memphis, Tennessee. He studied architecture at Washington University in St. Louis, then went to Europe where he studied both architecture and design at Munich. When he returned to America, he came to New York and worked at architecture until the crash. C.C.C. Camps had no appeal for him so he decided to make use of his accumulated knowledge of design in industrial fields.

During the next two years he restyled many items for Chase Brass & Copper Company and since then has devoted most of his effort to restyling Manning-Bowman merchandise. His creative work is done in his own studio but he manages to divide his time to spend a liberal part of it at the factory in close cooperation with factory executives. First hand knowledge of production methods and requirements is vital, he believes, to successful industrial design.

LOOKING BACKWARD and *FORWARD*

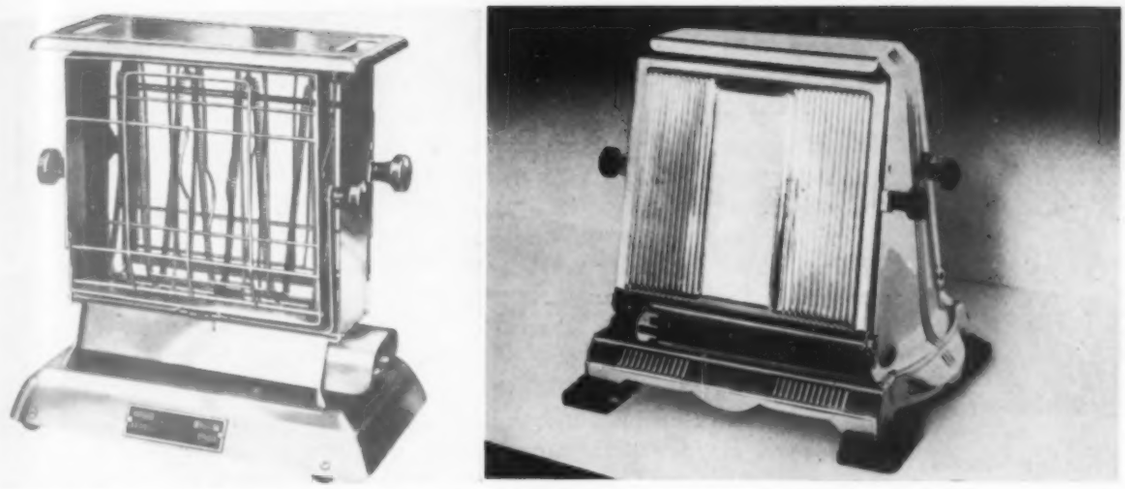
WITH JAY ACKERMAN

by E. J. Lougee

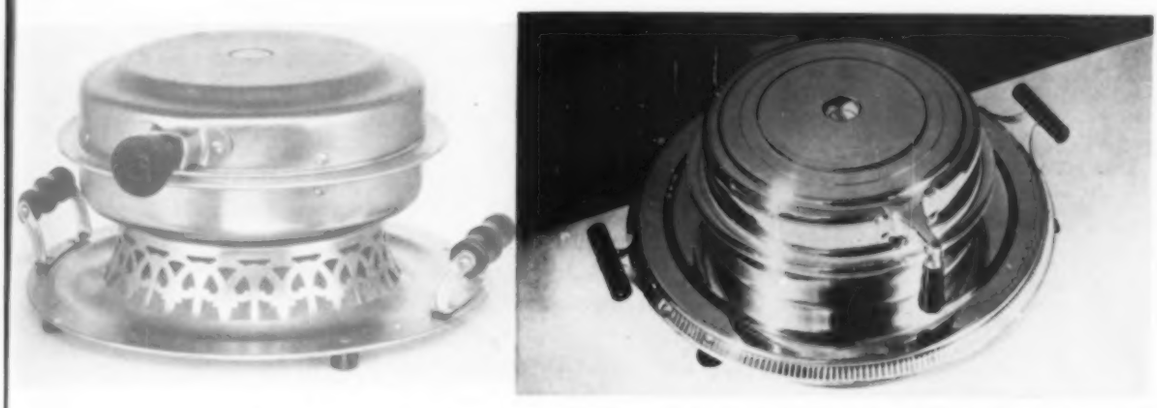
THE depression has fostered many strange children whose fond parents, lacking the means to support them in the manner to which they were accustomed, shoved them out into a forbidding and unreceptive world to shift for themselves. Some failed miserably. Others, with a generous share of common sense, and a dogged persistence and determination—peculiarly American, have not only established a place for themselves in the sun, but in doing so have helped others get a surer footing on the rough road to recovery. One such child is known today as "Industrial Design."

Practically unknown before the depression, Industrial Design has stepped forward with measured stride to lend its skillful appeal to out-moded merchandise and revive it with fresh interest to those who have money to spend. It has the backing and support of the best brains in American industry as well as the creative support of those best qualified in the Arts and Crafts.

But little research is necessary to prove beyond any doubt that Art in Industry has been exceedingly helpful in changing sales curves in a more hopeful direction. It has given new life to old products. New pep to



The old toaster with its exposed heating element and irregular contour gives way to a streamline model with modern plastic handles and feet



The old and new waffle irons are both round. Otherwise, they are quite different in general appearance and decorative treatment

weary and discouraged salesmen. New enthusiasm and a more optimistic tone to national advertising. It has made greater progress in America than anywhere else, and its influence will expand with recovery in accordance with the individual vision and confidence of manufacturers who recognize the opportunity it proffers.

Hand in hand with the opportunities of industrial design go the opportunities of plastic materials in their various forms.

"The very essence of successful design in architecture or industry," says Mr. Ackerman," is pleasing contrast. This can be accomplished only by combining contrasting colors or contrasting materials. In choosing materials, it is of first importance that they be practical. Practical from the viewpoint of use by the consumer as well as that of handling in mass production at the plant. They must be practical, too, in point of economy. Today's market readily accepts good design but is unwilling to pay premium prices which are out of proportion to requirements of present-day standards of living.

The old and new Manning-Bowman coffee percolators. A true "Belle of the Gay Nineties" takes more pleasing form. Of course, the NEW handle is of plastic material

★ The restyled chafing dish of chromium and plastics has so completely replaced the former model that not even a photograph remains to picture the change

"We have used plastics quite generally in the Manning-Bowman line because it is versatile and permits us to do many things which would be prohibitive with other materials. Black plastic, for instance, is much better to use for handles and other trim than wood. It can be molded in any shape our design may require. It has depth of color and lustre which is unique. Where the polished surface of natural grained wood is desired, wood should be used rather than attempt to substitute imitation grained plastics in its place. There is no substitute for the beautiful markings of burled walnut, and by the same token, there is no substitute for the depth and brilliance of plastic material in bright colors. Enameled woods and metals cannot compare with the natural brilliance of colored plastics, nor will they wear as well."

The new fall line of Manning-Bowman products will use plastics more generously than ever for contrasting trim, according to Mr. Ackerman. It is the business of this company to make and sell metal products. There is no doubt that they would like to use metal to the exclusion of all other material. The fact that they make such general use of plastics to decorate their product with its pleasing contrast is evidence of the importance this material plays in the scheme of modern design.

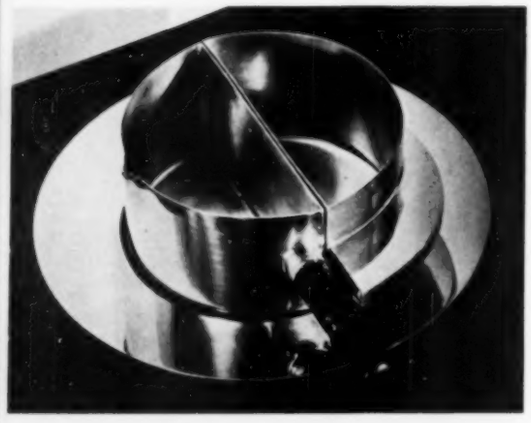
It is equally true that items made mainly from plastics should employ contrasting materials to accentuate and relieve the plastics themselves.

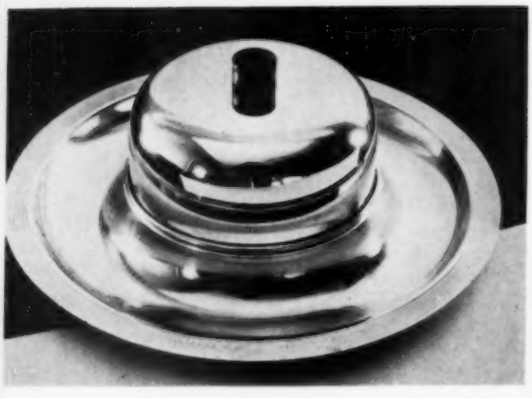
"Plastics," says Mr. Ackerman, "have been a great help in styling lines. Modern design is so simple in itself that it needs well-designed contrast of form as well as color to make it click. Take a simple item such as a tea-kettle for example. Even if it were more practical, made entirely of metal, it would instantly become common and uninteresting without its contrasting handle and knob of another material. In addition to improving the appearance of the tea-kettle, the knob and handle of plastic provide a means of lifting the kettle and removing its cover without burning the hands—a very practical reason for its use.

"The effectiveness of trim on giftwares and kitchen things often equals in importance the outline and form of the object itself. It is the successful combining of the two which brings sales.

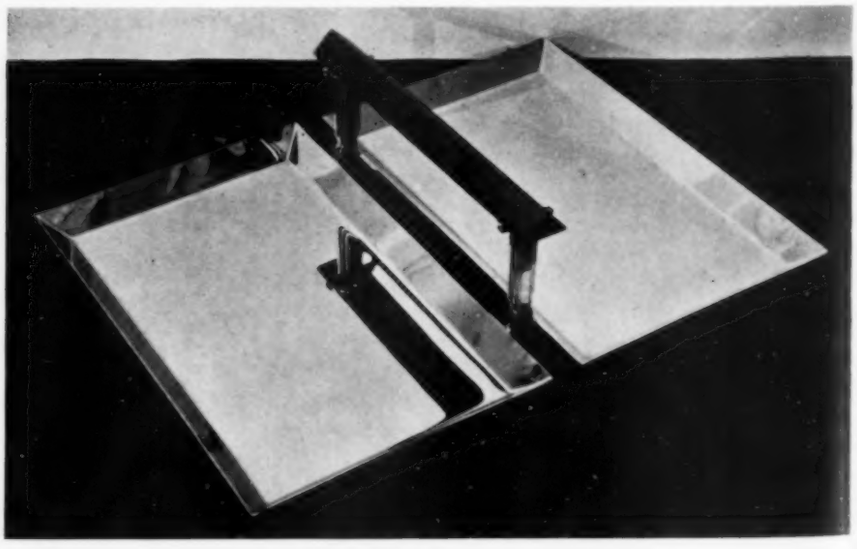
"Electrical appliances, especially those used in the kitchen and dining room of the modern hostess, offer many useful opportunities for plastic material. It is decorative in appearance. Insulative in action. Clean and sanitary to use, and has a finish that is definitely permanent."

Probably at no time since John Alden and Priscilla Mullens were married and set up housekeeping in their log hut in the Plymouth Colony have pots and pans, and other kitchen and dining room utensils been so well designed and so good to look at as they are today. (*Continued on page 59*)





★ Two examples of chromium and plastic happily combined in modern Giftwares



★ Double serving tray with walnut handle. Identical trays with gay handles of colored plastics will join the line this fall

DO DESIGNERS KNOW WHY *Molding* COSTS ARE HIGH?

by C. W. Blount

ASST. SALES MANAGER, BAKELITE CORPORATION

NON-ENGINEERING executives of a large corporation recently enlisted the services of a designer to create a design for a new product to be made entirely out of plastics. When the design was submitted, it was exactly what they wanted, and it was turned over to their engineers to manufacture. The engineers protested. The design was impractical. It would treble mold costs and production costs. Their protests were overruled, and they were told to "make it and cut costs elsewhere." The item is on the market today, and is a big seller, but the difficulties that had to be overcome in its molding would fill several volumes. With a few slight changes in design, hardly noticeable in the finished product, thousands of dollars could have been saved in mold and production costs.

One molder tells of an electrical manufacturer who desired a large part to be molded from asbestos molding material. There were two cores in the piece—one quite long, the other short. "We suggested certain changes," he relates, "but they would not make them nor pay our price. They went to another molder, who attempted to make the piece. After a month's trial, the customer, in desperation, came back to us and asked us to help him out. Ten carloads of equipment were awaiting shipment, and he had to make immediate delivery or lose his contract. We took the job and found that the molder was trying to mold the piece upside down, with a large piece in the bottom of the mold, instead of using it as a punch."

These two instances are representative of the unfamiliarity of many concerns with the factors involved in economical plastic molding. Is there a manufacturer who is not keenly interested in keeping his production costs as low as possible without impairing the quality of his merchandise? The user of plastic molded parts is not always sufficiently informed on molding technic to foresee that a particular product design will raise his production costs out of all reasonable proportion to his final selling price.

On the other hand, many product designers concern themselves with creating designs only, disregarding the materials from which the finished products will be made. It is not necessary that manufacturers and product designers be thoroughly acquainted with plastic molding technic, but they should know certain fundamental principles—factors which increase production costs and how they can be avoided. The design of the piece to be molded is of primary consideration. Almost anything can be accomplished at a price, but most concerns are interested in economy and facility of produc-

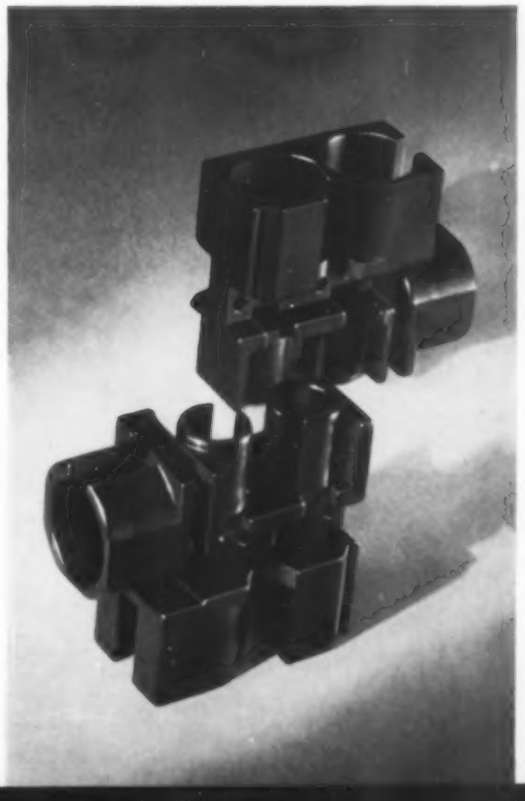


FIG. 1

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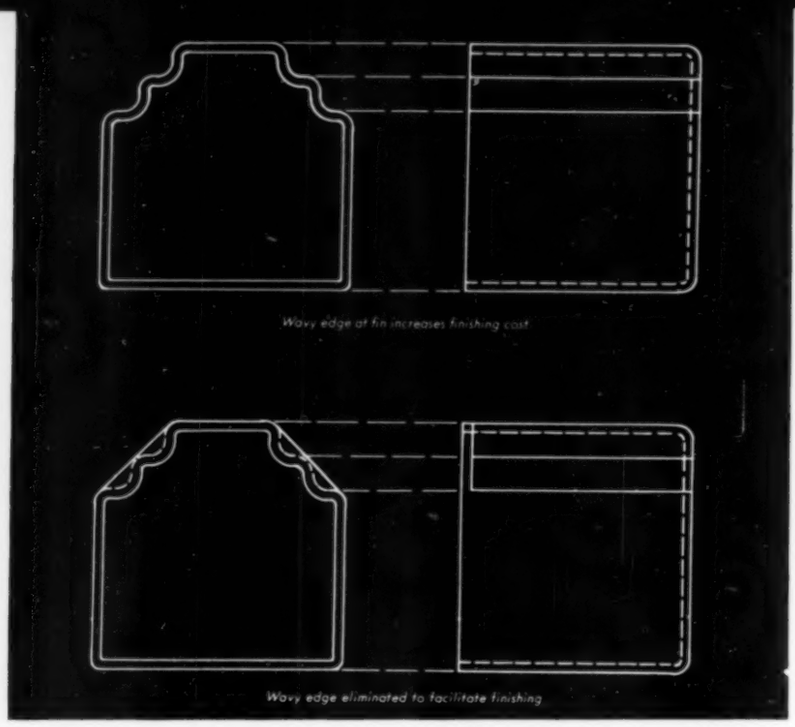


FIG. II

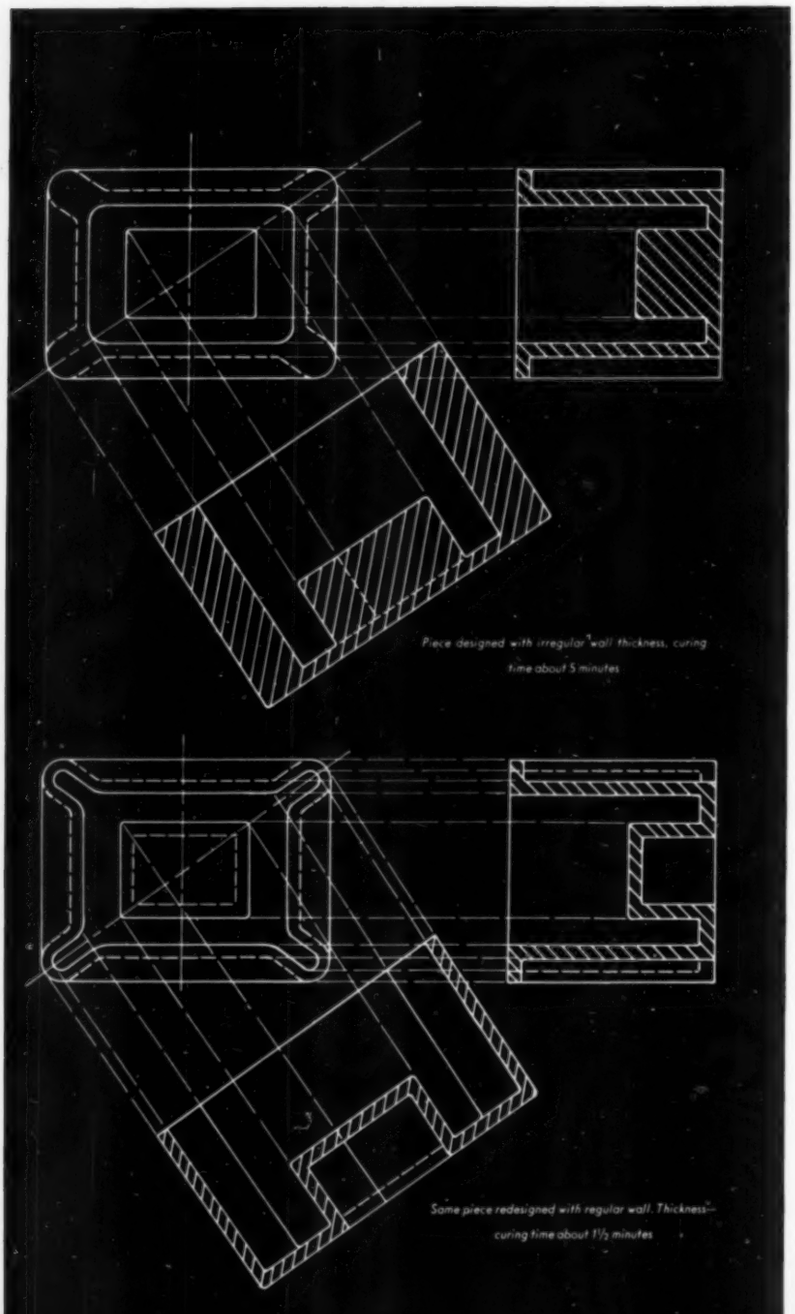


FIG. III

tion. Consequently, there are definite restrictions on the design of molded parts, and of the molds to produce them. In future years these restrictions may be eliminated or greatly reduced, just as many others have been in the past.

This article covers, with as little technicality as possible, those general factors which enter into economical commercial molding—factors that should help the design engineer in his creative work, and factors that reveal to the manufacturer why his molding costs may be higher than necessary.

In designing products to be fabricated from molding materials probably the first principle to remember is that it must be designed so that it can be removed easily from the mold, after the molding operation is completed. When this point is overlooked, as it has been frequently, molds are useless for quantity production work. Obviously production costs are greatly increased.

Molded parts, and the molds to be produced, should be kept as simple as possible. The more complicated they are, the more expensive will be the mold cost and production costs. From this statement, it should not be assumed that complicated and intricate pieces cannot be produced—they can be, and are being turned out regularly (Fig. 1), but the production cost, and the cost of molds, are commensurate with their complexity.

Precaution should be taken to insure that the product design is correct in every detail before the mold is built. Very often, the construction of wooden models will indicate possible improve-

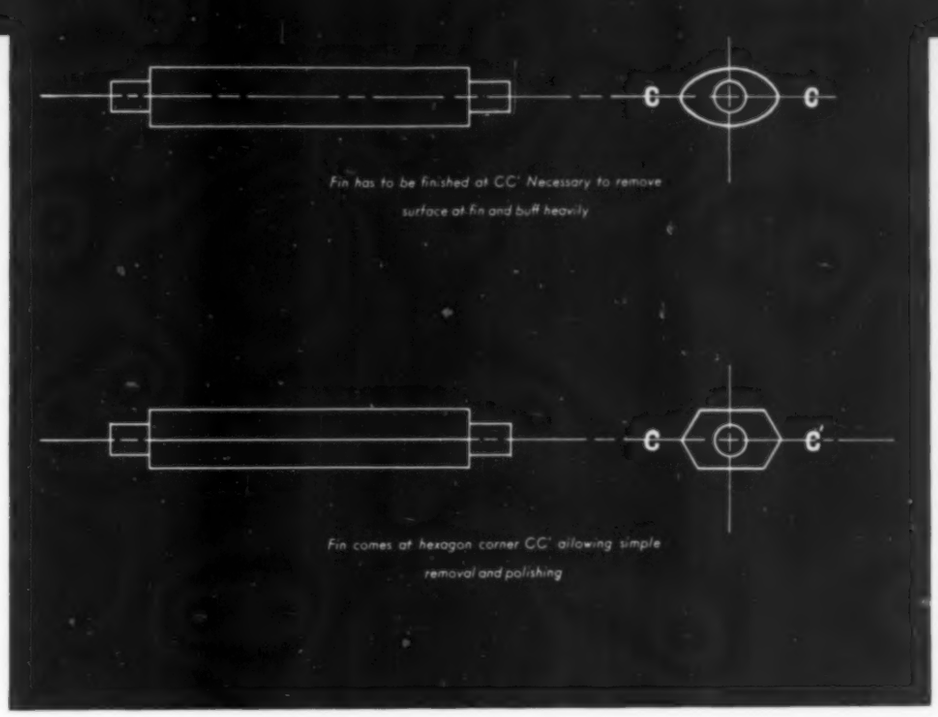


FIG. IV

ments in product design, or disclose errors that are not discernible on paper. Before constructing costly multiple cavity molds, it is advisable to build a single cavity mold for experimentation. One well-known molder states that he has had several instances where a designer or customer has been so confident that his paper designs were perfect that he would not go to the expense of single cavity molds, and proceeded with the production molds right at the start.

Experience has proved to this molder that as soon as the molds are completed, and the designer sees the actual parts, he finds several changes must be made. These, of course, require expensive alterations in the mold. These points can be found out easily with an experimental single cavity mold, and the expense of changes eliminated.

There is a tendency among designers to put closer tolerances on dimensions than are needed. "Very often, after a mold is completed," says R. W. Post of the Boonton Molding Company, "and the parts are in production, it has been found that the parts would be satisfactory and acceptable with much larger tolerances than originally specified. Of course, in providing for these exact tolerances in a mold, the cost of the mold design is much greater." Mr. Post also brings up a point that has happened in several instances, "where a designer, in order to get certain decorative effects, will show a finished edge that is fluted or wavy. Such an edge is, of course, either hard to finish or complicates the mold design with a corresponding increase in its cost. In most cases these flutes or grooves can be stopped within $^{1}/_{16}$" of the edge, leaving a perfectly smooth, straight, or circular edge to finish" (Fig. 2).

A common fault in plastic design is the requirement of non-uniform wall thicknesses (Fig. 3). A piece may have wall sections which would normally require about three minutes to cure, but to get a certain effect, the designer has, at one point, a section with a larger wall thickness, which would require approximately a six-minute cure, thus increasing the production cost of the piece greatly.

In an effort to cut costs, manufacturers should not

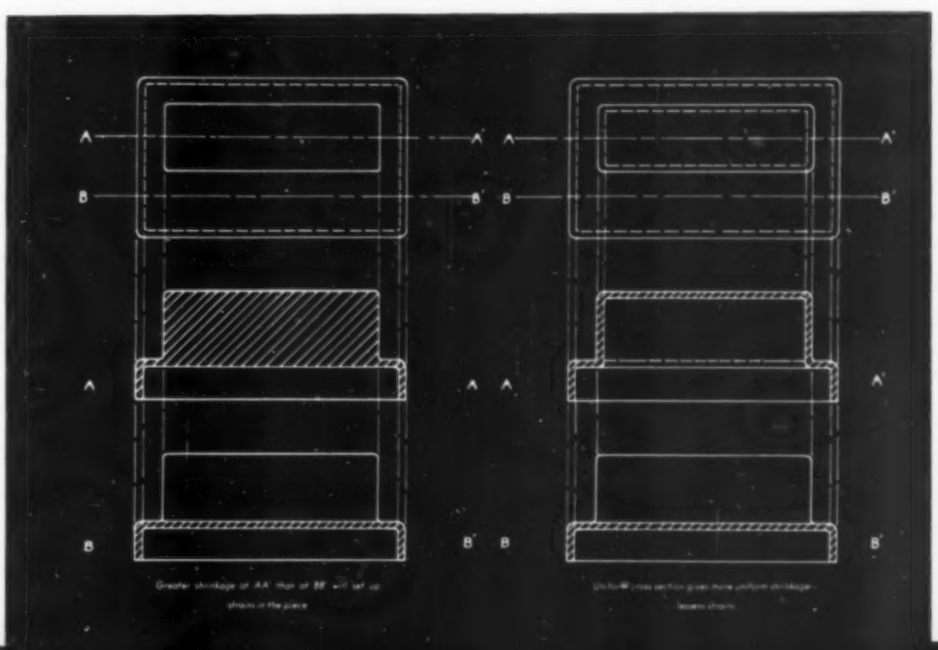


FIG. V

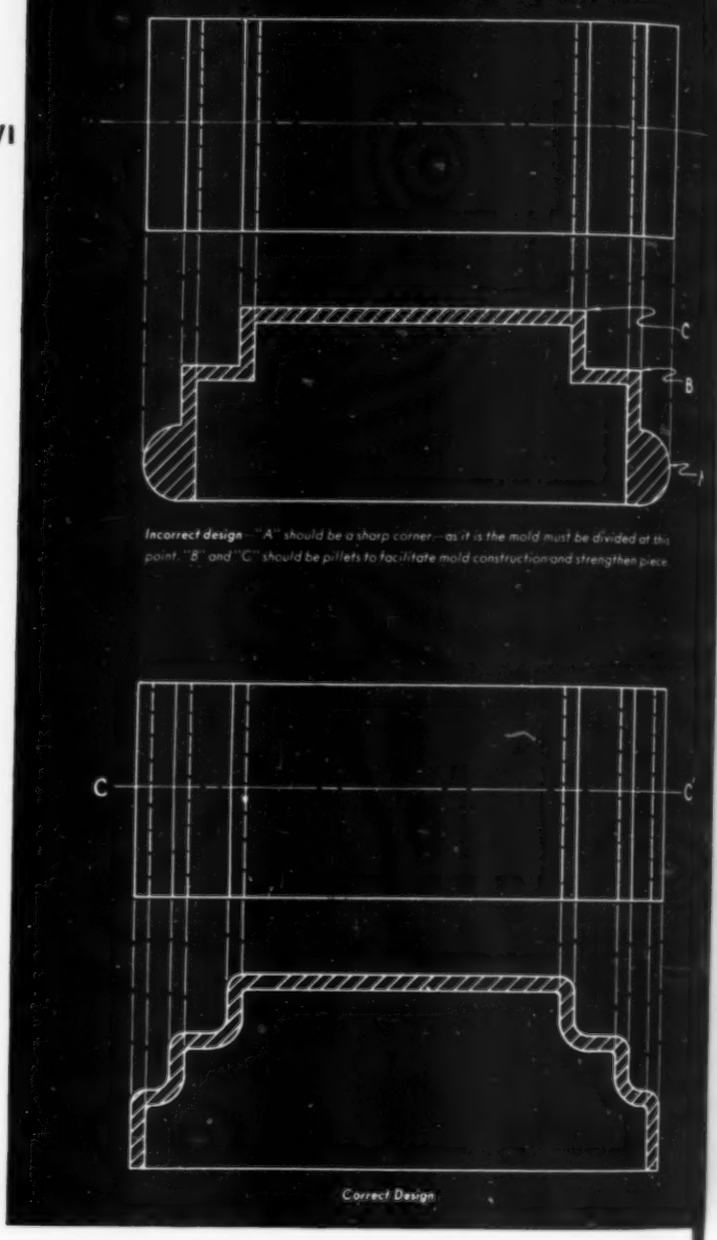
have molds built by one molding plant when they are to be used by another. As an example of what may happen, there is the manufacturer who came to a molder and asked for a quotation. Fearing that the molder might make a slight profit on the molds, the manufacturer took the job to a tool maker, and placed his order with them for the molds, instructing that when they were completed they should be sent to the molder. These molds cost him nearly $5000.

When the molds were received, the molder found that they were what is known as "flash type" molds. Preforms were to be placed in the cavities, but no provision had been made for a well. As a consequence, the piece would not receive sufficient pressure, and 33% of the molding material went as "flash." Since the manufacturer was obligated to make immediate deliveries, the molder was compelled to mold about 250,000 pieces before changing the mold to a "well type."

Considering the fact that there was a four-gram loss in "flash" for each piece, and considering that the molds had to be rebuilt, the manufacturer could have well afforded to pay almost any price for the right molds in the beginning.

To the manufacturers of precision instruments and apparatus, Donald Dew of the Diemolding Corporation offers another suggestion. "Many times in the design of these instruments," he says, "there is a tendency on the part of the designer to incorporate the plastic material so that the accuracy of an instrument may depend directly on the molded part. By this I mean that over a period of time, and

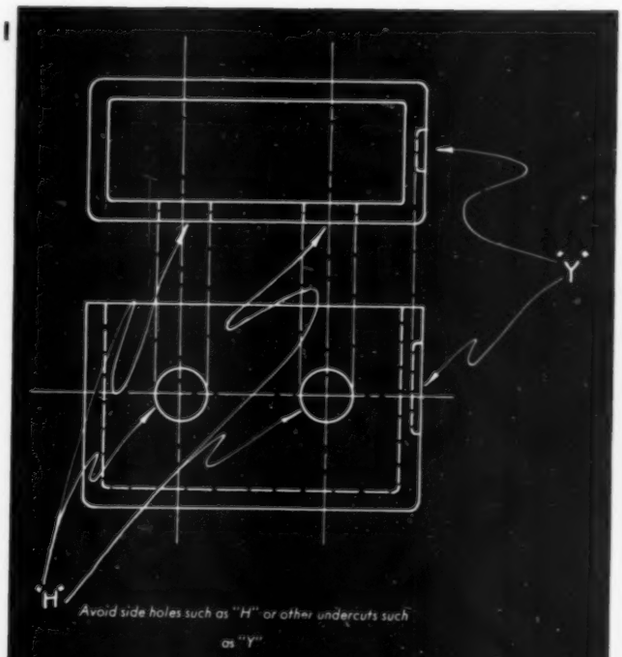
FIG. VI



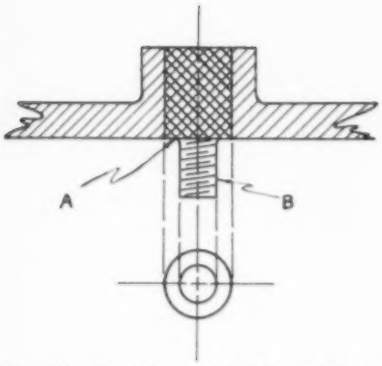
Incorrect design—"A" should be a sharp corner—as it is the mold must be divided at this point. "B" and "C" should be pillets to facilitate mold construction and strengthen piece.

Correct Design

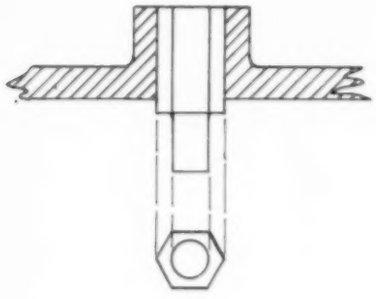
FIG. VII



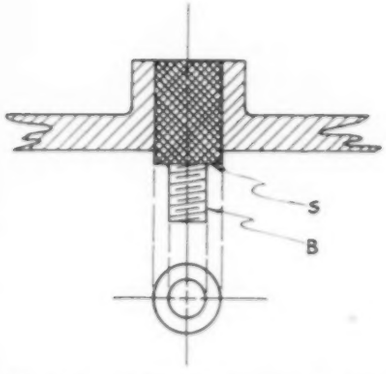
Avoid side holes such as "H" or other undercuts such as "Y"



Incorrect—Material covers insert at "A" and fills up thread, making cleaning necessary

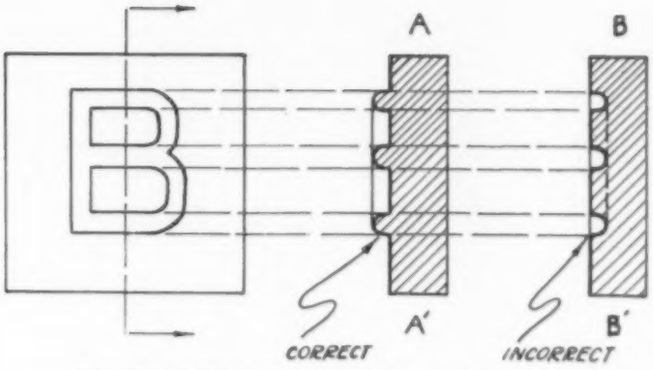


Incorrect—Other than circular inserts protruding from piece makes molds expensive



Correct—Material will not pass shoulder at "S" and threads "B" will remain clean

FIG. VIII



***AA'*—Raised letters** on a molded piece allows engraving the mold —a cheap procedure

***BB'*—Sunken letters** on a molded piece means cutting away the mold around the letter—an expensive operation

Note: If a hob is used in building a mold, the reverse is true

FIG. IX

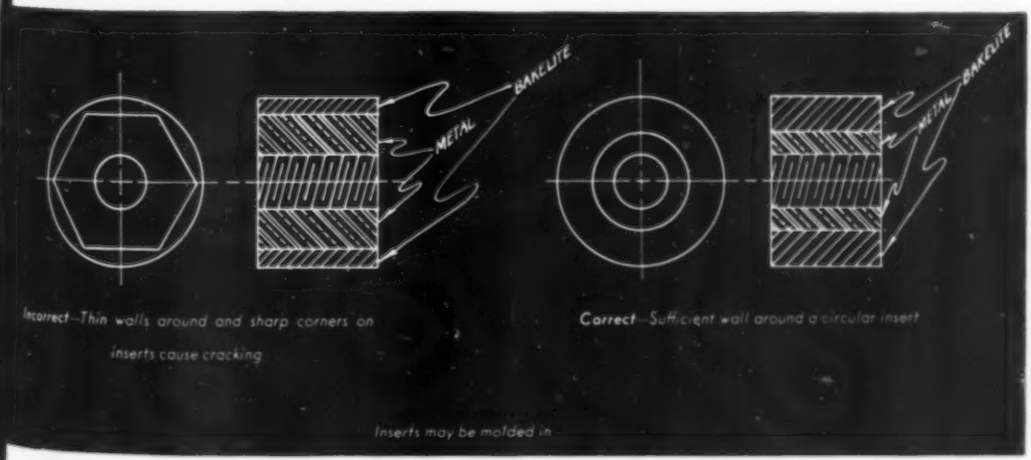
aging, slight changes in the molded piece might very definitely affect the accurate operation of the instrument in daily use.

"Generally the designer is prompted to do this because of economy or simplicity in assembling, but in most cases we have found this to be very dangerous procedure.

"Such a design problem might be illustrated by a barometer where it is proposed to use plastics for the outside case. This can be accomplished satisfactorily if the working parts are assembled as a separate unit, and simply surrounded by the Bakelite molded shell.

"This procedure will tend to eliminate rejections, or dissatisfaction on the part of the instrument manufacturer. It will give him a steady flow of parts at reasonable prices, both as to tools and pieces, and avoid expensive mold adjustments."

A fin or parting line is left on molded pieces by the mold parts where they meet in the closing of the mold. Hence, the fin should always be considered, by designing the piece around it (Fig. 4), because a fin must be removed after the piece is molded. Therefore, a piece designed properly will (*Continued on page 57*)



Incorrect—Thin walls around and sharp corners on inserts cause cracking

Correct—Sufficient wall around a circular insert

Inserts may be molded in

OUR impression of the Industrial Arts Exposition which opened April 15th under the auspices of the National Alliance of Art & Industry, leaves us puzzled and cold.

Industrial design has reached a point of importance in the manufacturing and merchandising structure of this country where its influence is of tremendous benefit to industry as a whole.

Art in industry has successfully engaged the attention of practically every chief executive in all lines of industry. Many of them are exhibiting in the present display. Artists, designers, and engineers are devoting the last ounce of their effort to improve the outmoded physical appearance of yesterday's merchandise and replace it with more pleasing, more interesting, and more useful things which will strongly appeal to those with money to spend.

We had been led to believe that the exhibit was created to unfold to the public the new technique of design in industry which has served so well to set deserving products on the road to recovery and we find it hard to reconcile the button-faced souvenir cards which we were urged to buy at 10 cents each with this worthy project. It is obvious that those responsible for the management of the exhibit have in some manner become sidetracked from the noble purpose with which they began.

Properly managed, an exhibition of this sort would become nationally important and present a splendid opportunity to the public which views the exhibits to become better acquainted with the progress that has been made.

We will grant there are many fine exhibits which reflect the same untiring thought and care in preparation that manufacturers are devoting to contemporary products. The general background at the exhibition designed by Virginia Hamill is very fine and it is extremely unfortunate that those responsible for the management did not plan with equal thought and discretion.

The displays of those engaged in the Plastic Industry are worthy of the high place this new and interesting material holds in the field of industrial design. An opportunity is offered the public to become better acquainted with the nature of the plastic materials and products with which they are rapidly becoming familiar. Splendid examples of art in industry are on display in this section of the exposition and we resent the intrusion of cabbage shredders, trick rug knitters, Mexican handiwork and pralines at a dollar a dozen. By no stretch of our very elastic imagination can we see the fitting association of Gregg's System of Shorthand, State Employment Service, The Huguenot Camp for Boys or Insurance Annuities in an exposition with an avowed purpose of promoting good design in manufactured products. With all due respect to these worthy projects, they are as incongruous as a peanut concession in the Anderson Galleries.

The British Industries Fair which closed recently in London, has proved one of the most successful, by far, since the first British Industries Fair in 1915. The Fair is considered a valuable index to British trade in general and in every section there was a representative showing of the most advanced products England has made. But, it was a trade fair and was announced to the public as such.

Nearly 31,000 more people visited the Fair this year than last, or nearly 200,000 in all, which gives a fair conception of the interest and importance such exhibitions command. The Annual Industrial Arts Exposition at Rockefeller Center, it seems to us, has spoiled a wonderful opportunity.

If we are wrong, we are willing to be shown. Our columns are open to those responsible for the management of the Exposition, and to those well known industrial designers, who have done so much during the past few years to promote Art and Industry, whose foresight prompted them to remain away.

Our only hope of reward for this frank expression of opinion is that it may contribute in some small measure to a more intelligent handling of future expositions and lead to a more thorough understanding of the elements essential to their success.

In opening these columns for comment upon the Industrial Arts Exposition we want to make it perfectly clear that we have no quarrel with those exhibitors who have created their displays in the true spirit of the exposition as it was originally outlined. We are one of them, and feel that we have every right to speak frankly. There is no doubt that many Mr. Average Americans and Miss Typical Consumers will enjoy the displays. They will see many interesting improvements in commonplace things. There is no doubt that many benefits will accrue to both exhibitors and those who visit their displays. Genuine expositions have tremendous value in educating consumers to accept and appreciate the inevitable in improved design. The danger of the present exhibit lies in the confusion made possible by extraneous display under a title obviously misleading.

The Open Columns

OUR interest in good industrial design is deep and selfish. Its influence has been clearly reflected through increased tonnage of plastic materials. Art in Industry is firmly established. Industrial design has clearly demonstrated its influence on sales. It is a profession of dignity and importance. We hope it remains such.

Our request for a statement from the management of the Industrial Arts Exposition, and from the National Alliance of Art and Industry brought forth the statement that they prefer to remain silent. Prominent designers whose national standing give credence to their remarks, however, were more communicative. We print excerpts from their replies.

Egmont Arens says, in part (quoted from *Retailing*), "* * * Upon protest by the associated artists, it was promised by the National Alliance of Art and Industry that this year's show would avoid the mistake of last year, and some of the artists hesitatingly lent their names to the enterprise again. But when it was discovered that the indiscriminate admissions were not only to be continued, but that the entrance standards had been so much lowered that the show was to be a glorification of boondogglery instead of a genuine attempt to educate the public in the best standards of industrial design, the leading designers, in order to save their reputations, had no alternative but to withdraw from participation.

"The present show is patently a trades show, and I may say that it has been very well presented. The general layout and background effects by Miss Virginia Hamill are exceedingly fine. The designers would have no quarrel with the Alliance if it were plainly stated in its literature and press releases that this is an industrial show, without limitations, and that the management has sold space to anyone who wished to pay the price per foot. But when the exhibition purports to represent the best that is being done in Industrial Design in America, and uses the names of the designers in its literature and sales efforts, then they have no alternative but to protest as vigorously as possible against this patent misrepresentation. * * *"

Donald Deskey feels that "space selling exhibitions savor of a racket and that manufacturers get little benefit from them. They are usually induced to buy space because they are led to believe that their competitors have agreed to exhibit."

Henry Dreyfuss says, "The industrial designer's contention as regards the current N.A.A.I. exhibit of Industrial Art is, that objects were accepted for the exhibition in an indiscriminate manner which had no bearing on their design appeal; that exhibition space was sold in order to fill a vast hall, but what went into the individual exhibitor's space did not seem to concern the people in charge of the project. * * *"

Lurelle Guild adds, "It is indeed regrettable that the present Industrial Arts Exposition has fallen so far short of its original aims and purposes. * * * It is to be hoped that the concerted action of the group of designers refusing to participate will result in raising the standards for the next exhibit."

Raymond Loewy contributed, "There may be a need for an exposition of manufacturers' newest products, such as that current at Rockefeller Center, but it is questionable whether such an event should be presented officially by the National Alliance of Art and Industry whose original object was to sponsor design of the highest calibre. While some products in this exhibit are of excellent design, the general level is too uneven to be labeled an exhibition of Art and Industry.

"America's most powerful corporations have definitely recognized the value of competent Industrial Designers and they have made the new profession possible. It is now the duty of the designers to return the confidence placed in them by lending the influence of their names only to presentations of unquestionable standards and free from ballyhoo."

Gilbert Rohde, "* * * A group of designers withdrew their support from the current exhibition because in their belief an exhibition conducted upon the lines promulgated by the National Alliance could not possibly give a creditable picture of American Industrial design." * * *

George Sakier writes, "I'm sure there's plenty of good industrial design in the National Alliance of Art and Industry's Exhibit at Radio City. But—there's plenty of good industrial design in a five-and-ten-cent store. That doesn't make Woolworth's a gallery of the progress of art in industry. * * *"

Walter Dorwin Teague says in part, "The designers' dissatisfaction with the National Alliance of Art and Industry considerably antedates the present exhibition at Radio City. From the inception of the National Alliance, the designers have resented its efforts to interject itself between them and the manufacturers. The situation is much the same as if a lay organization should undertake to interpret the medical or legal profession to the public. * * *"

Walter Von Nessen writes, "There must be something fundamentally wrong with an organization who, while it professes to represent the interests of the industrial designer, puts up a show like the one now on view in Rockefeller Center. It would seem that at the present time it would be more important than ever, and also more possible than ever to make a good showing of the really well designed things that are being manufactured in this country today. * * *"

Russel Wright concludes that "The National Alliance of Art and Industry has failed to represent with dignity the profession of Industrial Design to either the manufacturer or the public. * * * Particularly in the case of the Exhibition sponsored by the Alliance this year has it been evident that the organization has no well-defined policy of education and has very low standards for the work contributed. It would seem that their interest runs more to the rental of space than to the avowed aims of the organization."

MERCHANDISING PLASTIC-COLOR

Jenkins Brothers follow up engineering with selling that emphasizes unique advantages gained through the use of plastics

TIME after time, plastics have replaced metals, woods and other materials in the fabrication of parts of merchandise for reasons of convenience, economy or ease of manufacture. Time after time, manufacturers have been content to rest upon these advantages— ignoring the additional plus qualities which the use of plastics have lent their products.

One outstanding exception is to be found in the policies of Jenkins Brothers, who have not been content to engineer a superior molded product (see the article, A Study in Industrial Engineering, pps. 26–27, MODERN PLASTICS, April) but have followed up with a planned exploitation of the advantages thus gained which should set a model for others similarly situated to follow.

Briefly the new Jenkins Valve Wheel replaces a portion of the Jenkins valves used on equipment in which it is necessary for the operator to distinguish between various steam, steam return, hot water, cold water and steam exhaust lines. The wheel is so planned as to meet the necessary requirements of permanence, fine appearance and heat-insulation. To distinguish between the various lines, the wheels carry raised lettering...but to provide a further, quicker point of distinction, as well as to provide added beauty of appearance, the wheels are available in a range of colors including red, blue, green, black and gray.

Essentially, the company's problem is not to sell the wheel as such (these are, in fact, not sold separately), but rather to sell the advantages afforded by the wheel as a means of selling the entire valve. A first step in the merchandising plan, therefore, involved the development of a salesman's kit which would permit of speedy demonstration to the prospective user, in most cases a manufacturer of valve-using equipment, of the outstanding improvements involved in the new wheel.

This kit, illustrated, contained four wheels which demonstrate the available colors and a fifth, mounted on a valve, which not only shows the color but serves to illustrate the appearance of the entire assembly. Thus, the primary advantages of form, construction and color are quickly demonstrated by the visiting salesman.

A second step necessary to the introduction of this different product involved trade journal advertising. Here it would have been possible to illustrate the mechanical advantages by the use of black and white advertisements. It was felt, however, that color played so important a part in the entire scheme as to justify completely the greater expense involved in the creation of colored inserts. One of these may be seen on the opposite page. Its front page sets itself a single job... the merchandising of color as such. Its second page explains the story . . . details the ingenious construction of the wheel, and illustrates the various types available.

Finally, a coupon leads to the third merchandising step, a booklet further descriptive of the entire line. This, too, is in full color, carrying on, in greater detail, the descriptions of the trade journal advertisements.

Here we see an essentially simple technique capitalizing the advantages, both direct and incidental, which plastics have lent this product. The mechanical features of the valve wheel are stressed as *plastic* features, the color is directly an attribute of the plastics used. Strength, firm grip, permanency of color, ease of cleaning—all these are advantages gained through the use of plastics and all are capitalized. Instead of treating its new material as a substitute, calling for an implied apology—as all too many manufacturers have—Jenkins Brothers have capitalized plastics to insure greater sales for their entire product.

These colorful plastics *speak right out* in salesman's display equipment

In tune with the times

IF YOU are a member of the Ancient and Honorable Guild of Organ Pumpers, you know what organs were like forty years ago. If you are in the habit of attending your local leading movie palace, you have probably observed that organs have improved but little in the years since you gave up pumping. True, they have replaced the boy-and-bellows with automatic pumps, valves and relays. But essentially, the organ is still the same instrument it has always been.

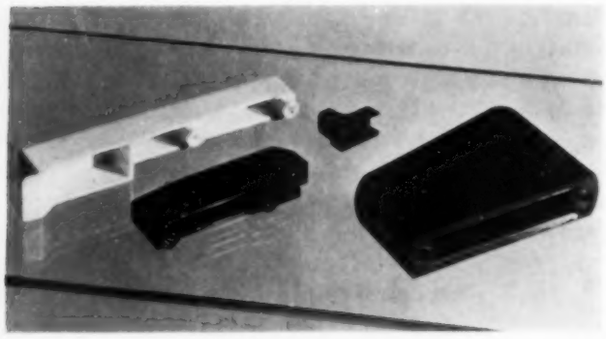
As such, it suffers from certain handicaps which, in the aggregate, have greatly retarded its use as an instrument. First among these is its large size and its necessary permanence of position. For organs are in most cases, integral parts of a building. Secondly, there is the element of delicacy. An organ out of tune requires expensive and extensive work to bring it back to shape. Third, the standard organ suffers from certain natural tone limitations. . . particularly in smaller installations, which limit the artist in individual expression.

These defects or deficiencies have not yet been overcome, in the standard types of organ, because they are inherent to the nature of the instrument. It has remained for a clock manufacturer to apply the newer developments in sound, radio and mechanical technique to the creation of an entirely new instrument which would achieve organ advantages while omitting organ defects. It is significant that, in developing such an instrument, Laurens Hammond, President of the Hammond Clock Company, has called upon those most modern of materials, the plastics, to aid in perfecting a truly modern instrument. Yet this is but a natural step for a company that was among pioneers in the use of plastics in its original field of endeavor, the manufacture of clocks.

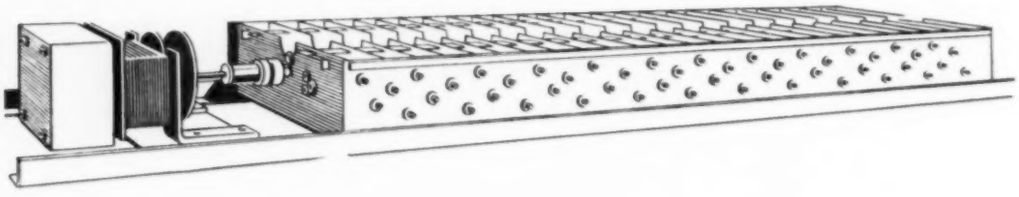
Consider, for a moment, the basic principles of this new organ. Instead of attempting to modify and improve the standard organ mechanism—by means of which mechanical impulses are converted to electrical impulses and then re-con-

verted to mechanical movements which permit of the opening or shutting of various air-vents—the Hammond organ has a single conversion, from the finger impulse on the key to an electrical one and, from there on relies upon electrical means to produce the necessary sound effects upon a "loud-speaking" sound diaphragm. There, described briefly, is the essential difference between the two organ methods.

In practice, a tone generating unit, consisting of a series of tone gears, sets up the desired electrical impulses. This is controlled from the keyboard and, as the feeble electrical currents are set up, they are passed through power amplifiers and so on to the speakers.



Molded plastic keys and foot pedal controls



Inherent to this system are a number of advantages over the older sound-producing methods. First, the complete absence of pipes cuts down cost, complications and weight—reducing the instrument to a single, portable unit and a cable-attached speaker cabinet. Secondly, the introduction of a synchronously controlled tone generator insures constancy of tune and tone qualities. No single note can get out of pitch because all are controlled from the same, synchronized shaft.

Third, the limitations of sound cease to be mechanical limitations . . . and are encompassed within the far wider range possible under electrical sound-creating conditions. Thus, by the substitution of electrical for mechanical means of creating tones, all three of the basic defects of the old-type organ are overcome.

Unlike the standard organ, the keyboard of the Hammond instrument has an extremely simplified movement. Since the object is to open and close the desired circuits in the fastest possible time, molded plastic keys are used, mounted on light-weight aluminum channels. These keys provide, of course, the standard plastic advantages of clean, clear, integral colors; of freedom from wear and of lightness of weight. Particularly on the foot pedal controls, where wooden pedals quickly wear and change colors, the use of black, molded blocks provide an insurance against ugly, worn surfaces. As the new instrument is small enough, low-priced enough and portable enough for home installation, this factor of appearance becomes of heightened importance. The organ ceases to be an instrument hidden away where only the player sees its condition. As a piece of furniture—destined for the central focus of a room—it must maintain a fine appearance at all times.

To conform with standard practice, the keys of the two manuals are white and black. This color scheme is reversed for the pre-set keys at the left end of each manual to distinguish these from the playing keys. Above the two manuals are a series of smaller keys operating so-called harmonic controls. These are set up before play and appear in four sets of nine each. To provide for quick distinction (*Continued on page 47*)

Laurens Hammond, President of the Hammond Clock Co., with his new creation

BIG MOLDING
LITTLE COST

WHILE the factors inducing the replacement of metals by molding naturally vary with each separate instance certain considerations are present in almost every case. These include simplicity of fabrication, permanency of finish, general appearance, freedom from cold metallic touch, ease and inexpensiveness of color variation and—frequently—lowered cost.

When objects are of comparatively small size, these factors usually turn the balance in favor of molded plastics. To date, however (with a few outstanding exceptions), molded plastics have not made much headway in the replacement of larger metal sections. One such outstanding instance is here described with the hope of encouraging further investigation, on the part of manufacturers using similar sections, into plastic possibilities in these fields.

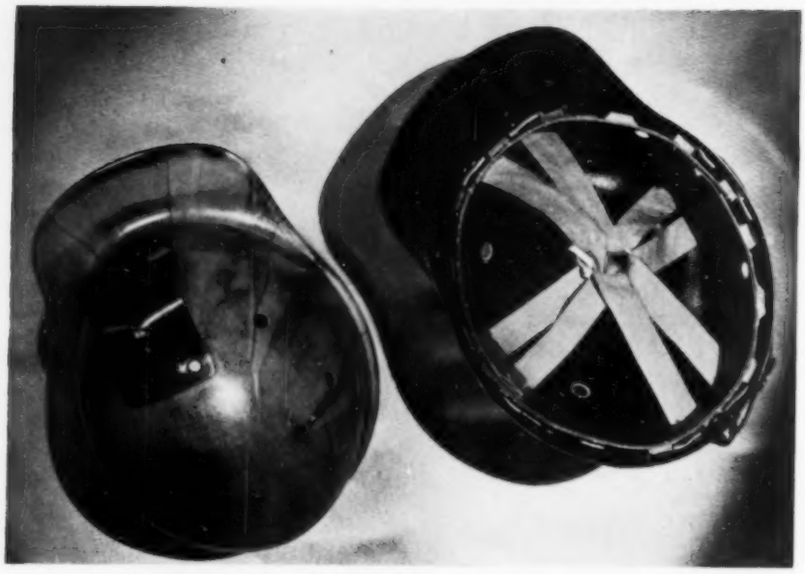
* * * *

The J. P. Fisher Company, manufacturers of hair drying equipment, sells directly to beauty parlors. They are in a position to learn quickly the advantages or disadvantages of any innovation in equipment by actual contact with the people who use the machines.

Although their standard hair-drying unit was achieving wide and growing favor throughout the industry, they were led, some months ago, to plan a new unit which would sell at a somewhat lower price. The change in design presented an opportunity to study possible changes in materials used—and this study resulted in the choice of phenolic molding.

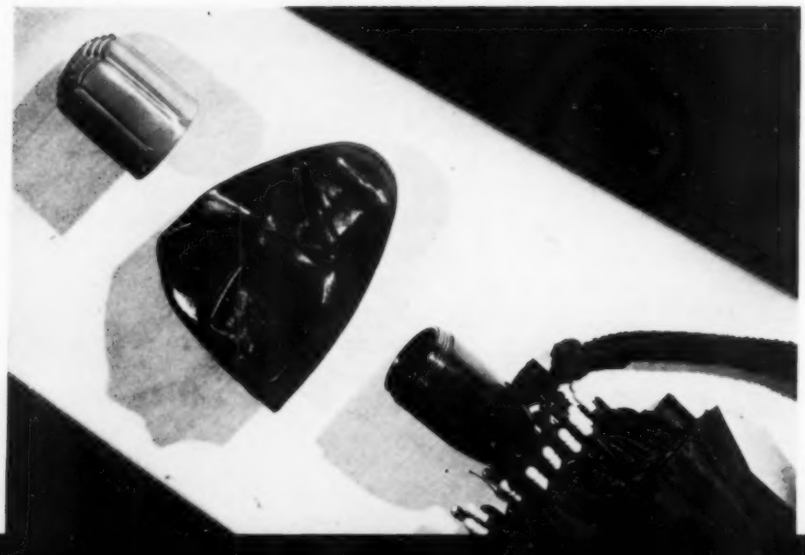
Immediately a number of advantages were secured. First, the expense of japanning or enameling was completely eliminated. Second, the dielectric properties of phenolics permitted the elimination of much insulation and of the incidental assembly operations. Third, greater permanency of finish was secured. Finally, a number of advantages in use were obtained—notably, greater confidence on the part of the operator and the customer that the new unit (*Continued on page 62*)

developments of the



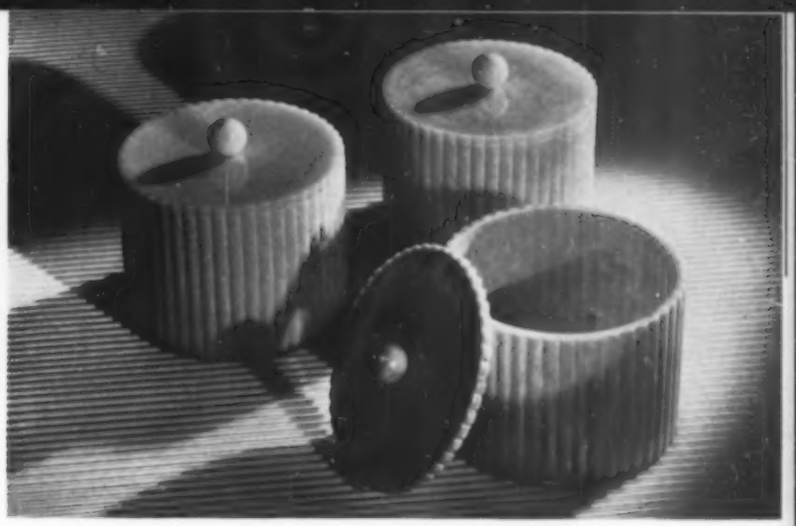
Mine Safety Appliance Company sponsors these miners' protective caps of Shaped Micarta Laminations. Available in several colors, the caps are easily adjustable as to size, fit snugly on the head in all positions and have a sturdy lamp-holding attachment above the visor

Competing successfully with inexpensive pasteboard poker chips, these urea molded ones have metal silhouette inlays. They are molded of Plaskon by the Portland Billiard Ball Company and come naturally in red, white and blue

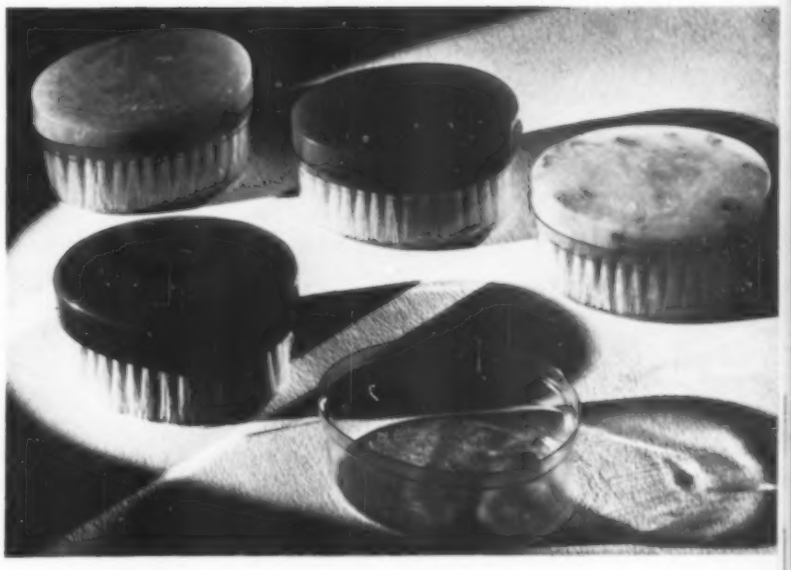


On the theory that both are needed at the same time, the Rubberela provides a pair of light rubbers within its red-capped handle. The handle itself is molded of black Durez while both the cap and rib-tips are in red of the same molded material

e month



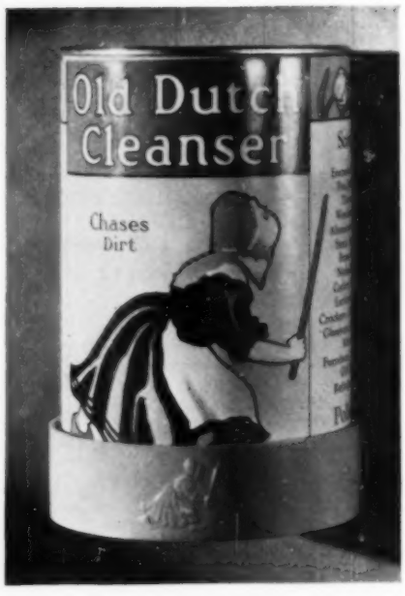
Translucent resinoid plastics, in yellows, pastel greens and a variety of other colors are used by Ray Sales, Inc. for this new line of bath powder boxes. The box bodies are cut from tubular castings while the tops are cut from rod stock of the same contour and diameter. Photo: Courtesy of Bakelite Co.



Cast-phenolics achieve a new utility in the form of these "complexion" brush handles, marketed by the Pro-phy-lac-tic Brush Company. The brushes, available in lemon yellow, tomato red, jade green and onyx white, are set in transparent pyroxylin trays, equipped on bottom and sides with ventilation ports. The Pro-phy-lac-tic Company has another innovation in its acetate handled nail brushes, available in a variety of striated color effects. All plastics used are by the Fiberloid Corporation

As its name implies, the Dri-Co Stein will keep your beer cold without gathering condensed moisture on its outer surface. The trick is accomplished by housing an aluminum cup with an insulated packing, held in place with a laminated Formica shell

Unbreakable Fiberloid crystals protect the bulbs of the Delta Powerlight, an all-purpose farm and utility electric lantern. When hit, the crystals dent and return to shape as soon as the pressure is relieved



Plastics continue their capture of premium markets. Here the Cudahy Packaging Company presents a new urea-molded cleanser-holder, replacing an unsatisfactory painted-metal premium. Molding is of Plaskon by the Auburn Button Works

Fanny Farmer candy shops formerly used papier-mache display trays; found they required frequent repainting, more frequent cleaning. Low initial costs mounted with each refurbishing. Hence Fanny Farmer turned to molded ureas; now reports Plaskon trays "costing considerably less in long run"

In planning the new model Kelvinators, designers sought increased utility for every accessory in the cabinet. Hence they replaced the customary metal cover, for the vegetable "crisping" bin, with a molded Resinox cover which, removed, becomes a handy serving tray

KEEPING POSTED

INTRODUCING THE EDITOR E. F. LOUGEE

WITH this issue of MODERN PLASTICS, the editorship is assumed by E. F. Lougee. His name is not an unfamiliar one to readers of this publication for he has been a consistent contributor since its beginning. And he is likewise favorably known for his articles which have appeared in *Modern Packaging*, *Printer's Ink Monthly*, *Sales Management*, *Advertising Display* (London), and other publications in various fields.

To him has been allocated the responsibilities of directing and expressing the editorial policies which have been established and will be elaborated upon as the needs of the plastics field are developed.

Mr. Lougee does not simply *write* articles—he thinks, coordinates and interprets them, and in a style that is at all times direct, comprehensive and understandable. In his position as editor of MODERN PLASTICS it will be his aim to discover and present opportunities for the growth of the plastics industry, by means of market studies and the intensive investigation of style trends and consumer desires, coordinating his work in such a way as to serve as a clearing house between the needs of the plastic consuming industries and the ingenuity and inventive skill of the plastic producers. The management of MODERN PLASTICS has ample confidence in Mr. Lougee's experience and in his ability to interpret and carry out such policies.

The **American Catalin Corporation** has purchased the name and United States manufacturing rights covering Prystal. The material sold under the name Prystal was a urea product of a waterclear nature, manufactured by Nobel Francaise of Paris. This type of material was not only subject to limitations in application, but the most serious objection was its susceptibility to cracking and distortion under varying changes in temperature and atmospheric conditions.

Catalin has purchased from Societe Nobel Francaise of Paris not only the United States registered trademarks covering the name Prystal but also the United States manufacturing rights under which this material was made.

Prystal as now made by Catalin is a cast phenolic resin having the same appearance as the former French Prystal, but it is much improved in its physical characteristics. The new Prystal is likewise produced in a larger variety of shapes, sizes and colors.

One of the newest forms of this type of material is known as "Star Dust." This consists of the clear Pyrstal in which minute flakes of gold and silver are held in suspension, producing an unique luminous, brilliant and gem-like effect.

Among some of the new applications of Prystal as made by Catalin is Boise Glacé, consisting of natural and rare woods imbedded in the clear material.

Samuel S. Gutkin has resigned from the Rezyl division of the American Cyanamid and Chemical Corporation and is now associated with **Barsky and Wilson, Inc.,** New York, N. Y. During his seven years at the American Cyanamid Company he was closely associated with Barsky in the development and technical application of alkyd resins to the paint, varnish, enamel and lacquer industries.

Oliver F. Redd has joined the research department of the **Patterson Foundry and Machine Company.** Mr. Redd, who has for several years been engaged in development engineering work in the Bell Telephone Co. and Western Electric Co. laboratories, will devote his energies to research in connection with mixing, agitating, grinding and other problems and in the development of new or modified equipment for the process industries.

The **Otten Products Company** has developed and marketed a new type of patented tube closure, consisting of a molded urea ball, set in the shoulder of the tube. The ball is so made that a hole passing through it may be moved into "open" or "shut" positions by the flick of a finger, permitting of the passage or nonpassage of the tube contents as desired. The company reports decided public favor indicated in consumer tests made on its specially developed product, Opco Tooth Paste. Molding is done by the International Insulating Division of the **General Industries Company.**

KEEPING POSTED

The **Lea Manufacturing Company,** specialists in the manufacture of buffing and polishing compounds, announces the addition to its technical staff of Mr. George C. Muscio, chemical engineer formerly with the Hanson Van Winkle Munning Co., and Dr. Henry L. Kellner, formerly with the Sterling Laboratories, New Haven, Conn.

These men will devote most of their time to research work in connection with polishing, buffing and electroplating problems and to the development of new products. The Lea Manufacturing Company has greatly enlarged its laboratory for this purpose.

Process News, house organ of the **F. J. Stokes Machine Company,** details in its first issue a number of machines of application to the plastics trades. Particular interest will be found in a description of the special giant tableting machine recently made to order by the company and having a capacity of from ten to twenty-five tablets per minute of a size up to six and a quarter inches in diameter. Other sections of the booklet describe and illustrate other Stokes tableting and granulating equipment. Copies may be obtained by writing the Advertising Department of MODERN PLASTICS.

The **Patterson Machine and Foundry Company** has issued a brochure on its product, Porox 66, a grinding lining media and lining ball material. It is claimed for Porox 66 that it cannot chip or break no matter what the conditions of operation it may be subjected to. Copies of the circular may be obtained through the Advertising Department, MODERN PLASTICS.

Of decided interest to firms utilizing pulverizing equipment, will be the current issue of the *Raymond Review,* devoted to the description and illustration of new developments in **Raymond Brothers Impact Pulverizing Equipment.** Copies may be obtained from the Advertising Department, MODERN PLASTICS.

The 15th Exposition of Chemical Industries will be held at Grand Central Palace, New York, December 2–7, 1935.

At the last Exposition, held in 1933, the attendance was from 983 cities and towns in 42 states of the United States and from 69 cities and towns in 27 foreign countries. The registered attendance was 34,269, representing an increase of 50% over the previous Exposition. Admission is without charge and by registration or invitation only. No tickets are sold.

The Exposition Advisory Committee will include distinguished representatives from all of the leading chemical organizations. This year's presentation will be directed by the International Exposition Company with headquarters at Grand Central Palace. Members of the Exposition Advisory Committee are as follows:

A. D. Little, Chairman, Arthur D. Little, Inc.; Raymond F. Bacon, Consulting Engineer; L. H. Baekeland, Hon. Prof. Chem. Eng., Columbia University; Wm. B. Bell, Pres. Manufacturing Chemists Assn.; J. V. N. Dorr, Pres. The Dorr Co.; A. E. Marshall, Pres. American Institute of Chemical Engineers; Henry B. Faber, Consulting Chemist; John M. Alverez, Pres. Salesmen's Assn. of American Chemical Society; William Haynes, Pres. Chemical Industries; Charles H. Herty, Industrial Consultant; H. E. Howe, Editor, *Industrial and Engineering Chemistry;* James H. Cripchett, Pres. The Electrochemical Society; Sidney D. Kirkpatrick, Editor, *Chemical & Metallurgical Engineering;* Roger Adams, Pres. American Chemical Society; L. H. Marks, Pres. The Chemists Club; W. T. Read, Rutgers University; H. J. Schnell, Gen. Mgr., *Oil, Paint & Drug Reporter;* T. B. Wagner, Consulting Chemist; R. Gordon Walker, Vice-Pres. Oliver United Filters, Inc.; M. C. Whitaker, Consulting Chemist, and Fred W. Payne and Charles F. Roth, co-managers of the Exposition.

This attractive container is of Plaskon molded by Kurz-Kasch

Soft, resilient crepe wadding called Kimpak is used by Luxor Limited, Chicago, to protect the delicate finish of the face powder box in its Luxor's La Pompadour Gift Box. In addition to the protection Kimpak gives, it imparts a feeling of added refinement to the product as one removes the lid from the dainty box of molded urea plastic.

Kimpak is made by Kimberly-Clark Corporation, Neenah, Wis., and is available in rolls, sheets and pads of various thicknesses. Being free from dirt and foreign substances, it will protect fine finishes and minimize breakage during shipment. The new Kimpak with glassine backing in a wide variety of colors will undoubtedly interest many manufacturers who can now combine the merchandising advantages of color with product protection in one material.

Plastic Exhibit Ends May 18th

THE Second Plastics Exhibit, sponsored, as was the first, by MODERN PLASTICS, and held in its Exhibit Hall at 425 Fourth Avenue has, in its first three weeks, attracted more visitors than did the first during its entire run. The exhibit will be open to visitors until Saturday, May 18th.

Featured among the seven thousand plastic items shown are such diversified pieces as miners' helmets, jewelry, cameras, television equipment, radios, adding machines, bookcases, clocks, switches, rheostats etc., etc.

Decorative and industrial laminations are exhibited by the General Electric Company, The Richardson Company and the Westinghouse Micarta Corporation. A large group of molders entered a vast number of items for exhibit, including Auburn Button Works, Boonton Molding Company, American Insulator Corp., American Record Corp., Cutler-Hammer Corp., General Electric, Kuhn and Jacob Moulding and Tool Company, Northern Industrial Corp., Norton Laboratories, The Richardson Company, The Mack Molding Company, Chicago Molded Products, Inc., and Reynolds Molded Plastics, division of Reynolds Spring Company.

Cast phenolics were shown in their growing number of applications by the Catalin Corp. of America, The Fiberloid Corp. and the Marblette Corp. J. M. Tyson and Staff entered a number of models and displays fabricated of Catalin.

The various phenolic and urea molding materials were represented by extensive displays, including exhibits of Beetleware, Plaskon, Bakelite, Durez, Tenite, Makalot and Resinox.

Other exhibitors include The Cambridge Instrument Company, The Heveatex Corp., The Gemloid Company, The Lusteroid Container Corp., The Barco Manufacturing Co., The Metasap Chemical Co., The Hygienic Container Corp., and the Mundet Cork Co.

LITERATURE

● WHAT MAKES PEOPLE BUY

By Donald A. Laird
McGraw-Hill Book Co., Inc. ($2.50)

230 pages divided between taking the consumer apart and examining his mental behavior when he decides to make a purchase; and analyzing salesmen—what they do, and what they say that makes them click—or *not*.

Heretofore, merely the surface of the customer's mind was looked into but this book goes far deeper and lays bare the usually hidden workings. It brings new advances in psychology, especially from psychoanalysis, right up to 1935, and shows how amazingly few and fundamental are the motives that really control buying.

This new book presents a new and radically different slant on the consumer's unconscious desires in marketing and should prove beneficial and interesting to all sales and advertising men.

● MARKETING INDUSTRIAL EQUIPMENT

By Bernard Lester
McGraw-Hill Book Co., Inc. ($3.50)

288 pages devoted to a comprehensive study of the problems involved in distributing machinery and equipment from the manufacturer to the ultimate user. A comprehensive survey and detailed presentation from the development of the industry to sales promotion. Graphically illustrated with charts and tables which are the result of a tremendous amount of research and labor.

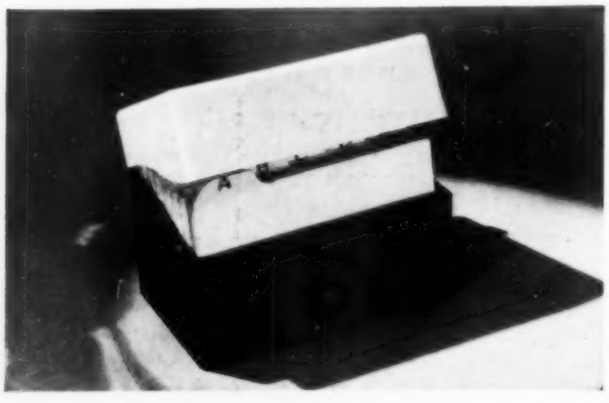
Leeds & Northrup Co. and George Kent Ltd. Announce Limited Agreement

An agreement, applying only to the sale of industrial electro-chemical instruments and certain types of flowmeters, has been consummated between Leeds & Northrup Company of the United States and George Kent Ltd. of Great Britain. Under this agreement, Kent will not offer its industrial electro-chemical instruments or its flowmeters for sale in the United States or Canada unless through Leeds & Northrup, while Leeds & Northrup will not offer its similar instruments for sale in the British Empire (except Canada) unless through Kent. Neither the sale, in the States by Builder's Iron Foundry, of Kent venturi and shunt type rotary meters, nor the sale anywhere by either company or its agents, of products other than those specifically mentioned is in any way affected.

PLASKON

FILE BOX:

This sturdy container is called Card File Index Box by General Electric, but it can be readily used for a score of other things. Its good looks—to which it falls natural heir by virtue of the black Textolite base and the ivory Plaskon cover—assured it a cordial welcome on the desktops of busy executives, secretaries, nurses. Noticeable is the neatness with which both plastics combine with the metal hinge. Molded by the Plastics Department of G E.



ORGAN KEYS:

Last month a revolution occurred. It happened quietly at Rockefeller Center when a privileged few came to hear the Hammond Organ. Pipeless, reedless, capable of producing 253 million different musical tones, incapable of getting out of tune, this magnificent instrument has altered conceptions of organ music held since the days of Bach. Today it is acclaimed by musicians and audiences everywhere for its mechanical perfection, its marvelous range—for its magical ivory Plaskon keys.

Which brings us to the second revolution.

From time immemorial, organs and pianos of quality have had ivory keys—or better, blocks of wood surfaced with ivory, a long strip on top, a short strip in front. These were expensive, often cracked or checked, very often discolored. Yet it remained down through the ages for a company—The Hammond Clock Company—and a modern material—Plaskon, molded color—to overcome these ancient deficiencies.

These pioneering Plaskon keys did not rest with mere remedy. Because they can be molded in a single, smooth over-all piece, they eliminate the usual unlovely sight of wood block base when the keys are depressed. Their light-weight (permitting instant return of the keys to their original position

MOLDED COLOR

MAY 1935

after depression), gives the player unprecedented opportunity to execute a difficult score and the instrument the widest latitude to demonstrate its versatility.

In bringing organ music within reach of churches, theatres, and homes of limited budget (the price of the organ is less than that of most grand pianos), Inventor Laurens Hammond has made a great contribution to fine living. It is typical of Plaskon that its part in the triumph has also been accomplished with great saving of money, time and labor.

It may be that we've been a little lyrical. But, if we have, we can only say that you would be too.

Molded by the Chicago Molded Products Co.

COMPASS:

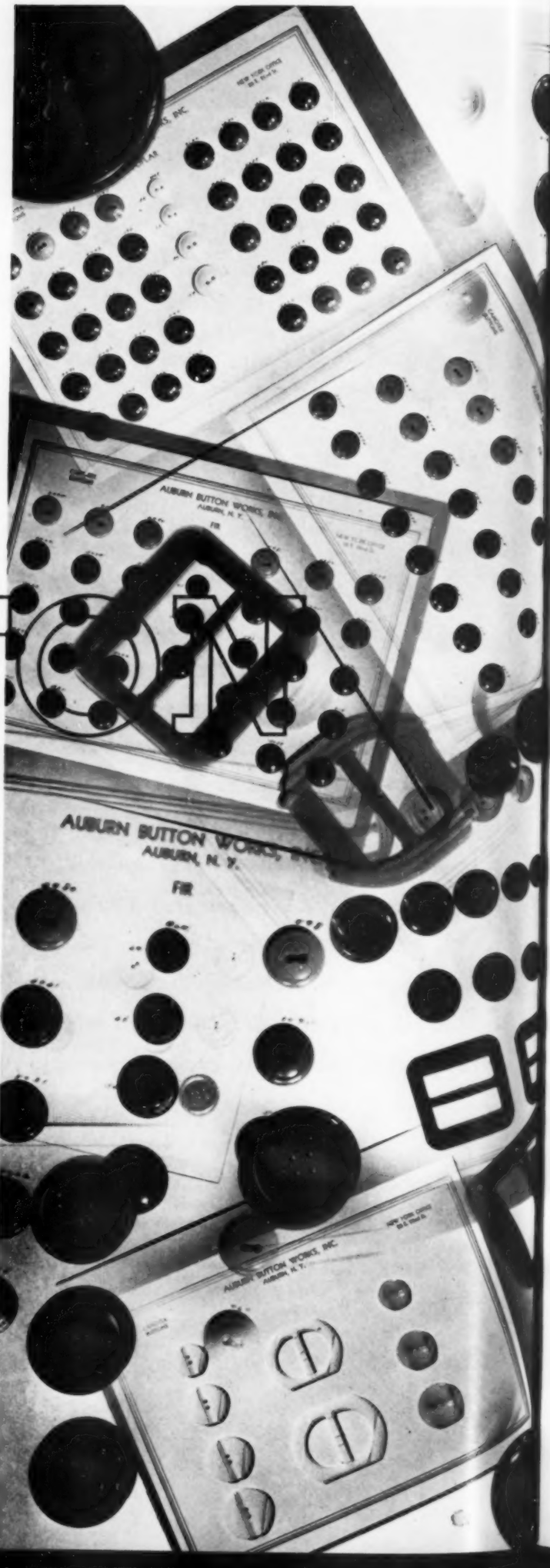
In the packaging field Plaskon is well known and much used. For countless articles its unbeatable color beauty has steered an unfailingly true course to greater sales. Now, aptly enough, Plaskon—in ultra-marine blue—encases the watch compass, a product of the Taylor Instrument Companies. Non-magnetic, strongly protective, and startingly colorful, Plaskon is uniquely suitable for this and similar instruments. Molded by the Die Molding Corp.

TOLEDO SYNTHETIC PRODUCTS INCORPORATED

TOLEDO · OHIO

WHAT'S IN A BUTTON

by Herbert Chase, M.E.



THERE are few more important applications of plastics than those involved in making buttons, buckles, slides and related forms of trimming. Practically the entire production of casein plastics is used for this purpose. Manufacturers of cast phenolics find a considerable part of their production going into items of this kind. Perhaps one-fourth or more of the ureas are similarly used. Among the molding phenolics, the proportion is probably less although the tonnage used is undoubtedly much greater. Cellulose acetate has come into the picture and cellulose nitrate is still employed, though in much smaller quantities than at one time. Furfural resins are also used and there are still some buttons made with asphaltic binder and possibly some from shellac. Rubber is similarly employed for inexpensive buttons. Limited amounts of cast urea materials have been used and at least one new resin of this type is being developed for the purpose. It will thus be seen that all the most important plastics are in the button field. There are, indeed, few plastics that have not been made into buttons, at least on an experimental scale.

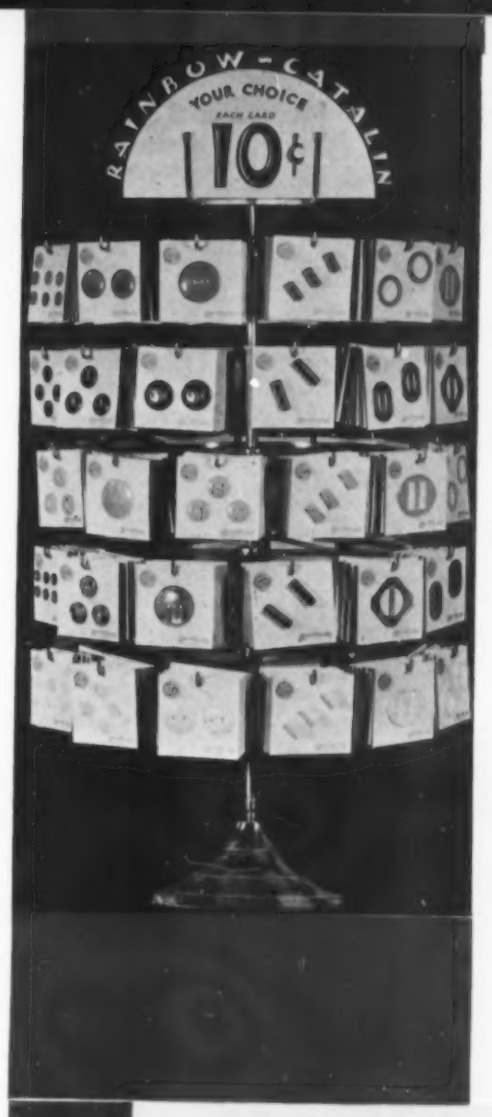
With all this competition, it is not surprising that nature's own products, such as horn, pearl, vegetable

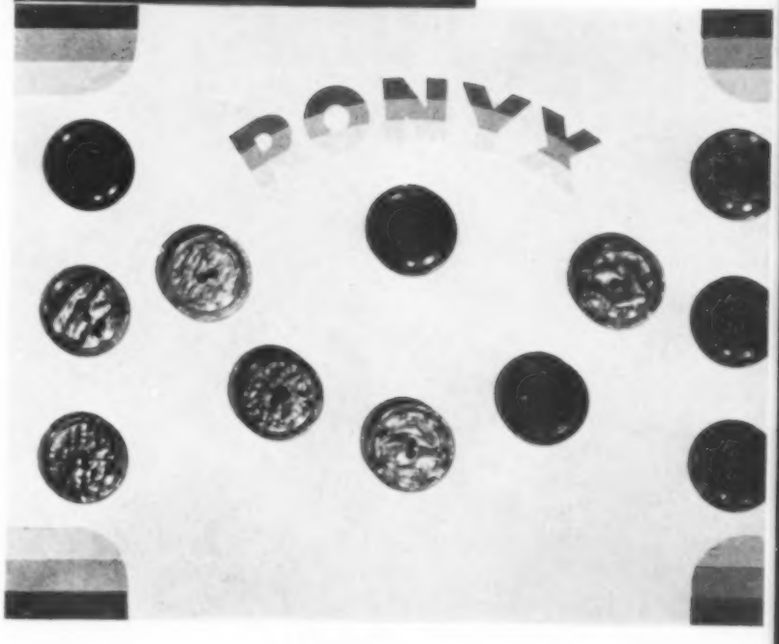
ivory, bone, leather, wood and nut, are being forced into the background, though they all persist, some of them on a very large scale. Glass, metal and porcelain, among other materials, also complicate the picture. Undoubtedly, many natural materials will continue in use always, but they seem likely to face stiffer competition from synthetic plastics. Even mother-of-pearl in its many beautiful forms is beginning to yield some ground. Although the plastic substitutes offered lack some of its qualities, they are more uniform and do not involve as much waste. Perhaps half the pearl buttons now made are imperfect in color or other respects, yet the imperfect must be sold along with the good, often at a fraction of their cost, and the good ones must carry this burden or profits and manufacture cease. Even the first grade is far from being perfect as a button material and is often broken in laundering or use. Hence, there is a great market open for a plastic that can displace pearl and overcome its disadvantages, though not necessarily duplicating its exact appearance.

There is no reliable data on the quantity of the different plastic materials used in making buttons and related dress accessories, but estimates place the annual consumption of molding ureas for this purpose at around one million pounds. Casein is probably used in two to three times this amount in this country, and there is perhaps, or shortly will be, as much cast phenolic similarly employed. The molded phenolics perhaps exceed any of the others, as they are the least expensive of the synthetic plastics and have many excellent properties.

Some estimates place about ninety per cent of the total plastic button production in the "staple" class, presumably including all the conventional circular types. At present, staple buttons appear to be affected but little by questions of style, so far as their design is concerned. As to color, style has some effect but only to a limited extent, as black, brown and navy blue are always by far the biggest sellers. Although the number of patterns within this more or less "standardized" group are legion, millions of the more popular ones are produced and the price margin is small for competition is exceedingly keen in this crowded field. In the remaining ten per cent of "novelty" buttons, higher prices are obtained and there is, of course, a greater opportunity for style in design and in materials used. Important shifts have taken place in the latter respect and give promise of continuing as the makers of plastics create new materials that lend themselves to new appearance or permit the substantial duplication of forms now popular by others at lower cost. Casein and nitro-cellulose have been and still are being greatly affected in this regard, especially by the increasing use of cast phenolics and by gains in the popularity of ureas as button materials.

Style does have a pronounced effect upon the total production even of staple buttons. At present buttons are much "in style," both for decorative and utilitarian purposes, and some observers anticipate that this vogue will continue for several years. There is no doubt, of





course, that buttons will always find a wide market.

The increasing use of the slide type of fasteners, at least one make of which has been produced in plastics as well as in metals, has had some effect upon the use of buttons and seems likely to make further inroads unless button manufacturers take steps to meet this competition.

Many factors may enter into the purchase of buttons in quantity and to some extent into retail sales. From an appearance standpoint, the important factors include color, style, finish or degree of luster and degree of transparency or translucency. Items which contribute to probable satisfaction in service include thickness, as indication of strength, adequate size of holes, and freedom from sharp edges which may tend to cut thread or to cause undue wear at button holes. Other factors of importance are fastness of color against fading and crocking, strength as affecting ability to resist breakage in laundering and pressing, possible effects of heat and degree of inflammability. When sold in sets, which often include buckles or slides, proper matching of colors is highly important.

To evaluate these factors some large purchasers of buttons subject them to certain tests, including boiling water, fadometer and breakage under pressure. So far as appearance is concerned, they rely upon their judgment or the opinion of experts in style.

The intelligent purchase of buttons is facilitated by a knowledge of the various plastic materials involved and also, to some extent, by a knowledge of the methods used in making. A few of the important factors will be considered and the significant properties of the various materials will be pointed out. As asphalt, shellac and rubber enter chiefly into the manufacture of very cheap grades of buttons, they are only mentioned.

There are two basic methods of making buttons from plastics. The first is to cut them by various methods termed "machining" from sheet, bar or (in the case of buckles) from tubular stock, somewhat as is done in making buttons from shell, bone and other natural products, but usually with much less waste, as the materials are more nearly uniform and available in the desired sizes or thicknesses. This method is followed with casein, nitro-cellulose and cast phenolics particularly. After the machining, which includes shaping to size and drilling of holes, the buttons are tumbled in an abrasive to remove tool marks and sharp edges and to give them luster. Sometimes, on high grade buttons, individual polishing is done. (*Continued on page 47*)

Redesign brings big order for HOBART MEAT CHOPPERS

Molded plastics and chromium combine well for improved appearance and utility. Large moldings of this sort indicate a definite trend in industrial design

STEPPING into the butcher's for a pound of Hamburger Mrs. Everyday Shopper will be astonished shortly to see the sleek new grinder the butcher will use. Red, black, or whatever color, the smooth plastic shell of the New Hobart Meat Chopper combined with brushed chromium parts, transforms an incongruous but essential device into a modern marvel of meat cutting equipment.

Industrial design recognizes no boundary nor prescribed area to encompass its successful efforts to make "things" more useful, more appealing, and in the case of foods—more sanitary. It is equally at home in the butcher shop, hotel and restaurant kitchens, or in our homes. Molded plastics are well chosen to replace metal in this redesign. They absorb neither odor nor moisture. Their finish is permanent. No chip, no peel, the surface is always clean.

The new Hobart is that good looking and practical that it instantly brought forth the largest single order for meat choppers ever placed by a prominent chain of retail grocers and butchers.

When the mechanical requisites are considered, George Graf, Doehler Die Casting Company's designer, and the Hobart engineers are to be doubly complimented. The combination of zinc die castings and either phenolic or urea moldings very simply and modernly house the motor and driving mechanism. The lines are modern, easy flowing, graceful. The soft chromium finish of the zinc die casting beautifully combines with the smooth black and gay color that is characteristic of the plastic shell.

The harmony of the body and the chopper is particularly satisfying when you realize that radical changes to conform to the body contour could not be made in the chopper end. The finished grinder parts conform to the brushed chromium of the base and body band. The all metal stumper handle is an aluminum die casting with a black anodic finish. The plunger is of drawn stainless steel.

Particular efforts have been made to eliminate any pockets, niches or corners in which dirt and grease might lodge. "A few sweeps of the cloth and she's as clean as a hound's tooth."

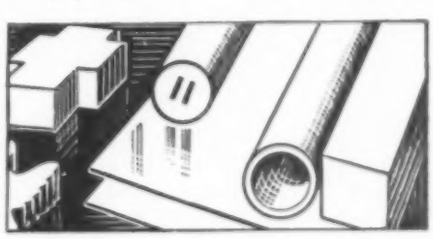
"This is another step in the appearance and mechanical design improvement of the Hobart Line. A coffee grinder whose design changes are far reaching will be announced soon," says Hobart. It is a wise step in the choice and application of appropriate materials—might be added in conclusion.

THE NEW TOP IN CAST RESINS

FIBERLON is a fit companion to Fiberloid and Fibestos, the older products of this 26-acre plant—greatest in the cellulose plastic field.

FIBERLON is a cast resin with characteristics we believe to be superior to anything yet produced—a statement on which we welcome your own inspection and manufacturing tests. Even more important, FIBERLON was developed by a corps of engineers and chemists with a practical knowledge of the problems of design, construction and chemistry which relate to the use of cast phenolics.

These chemists and engineers know FIBERLON, how to apply it to your product; how to design and machine it at the lowest manufacturing cost; how to insure the most delicate color match, with colors that will not fade, in short, how to help you use FIBERLON to your greater profit. For immediate complete information, address our home office.



FIBERLON can be supplied in sheets, rods, tubes or in special shapes for which we will design and build the moulds to your specifications, and in an unlimited color range.

THE FIBERLOID CORPORATION • INDIAN ORCHARD, MASS.

FIBERLOID

New ideas

● For the glass manufacturers whose wares have been replaced in part by molded articles there is some consolation in the recent observations which show glass wool to be a superior fibrous filler for plastics in many applications. Glass can be spun much finer than asbestos, and in longer fibers. A particular advantage over other fibrous fillers is that glass wool has much better optical properties, so that molded shapes can be made translucent, or even transparent. This permits decorative effects which are impossible with plastics containing asbestos or vegetable fiber fillers. Cellulose acetate, the styrene resins, alkyd resins and the phenoplasts can be readily compounded with glass wool for special purposes; good results are also obtained with urea resins. (F. Ohl, Plast. Massen, April, pp. 108–12.)

● One of the uses for synthetic resins which requires the material in relatively large quantity is the construction of containers for corrosive chemical reagents, and apparatus in which such chemicals are used. The latest product to be developed for this purpose is "Ferrozell," a phenol-formaldehyde resin product reinforced with a special fabric. Combining high mechanical strength and impact resistance with low heat conductivity and complete indifference to nearly all of the commonly used acids, alkalies and other chemicals, this material withstands severe service conditions for which metal tanks, vats, pots and the like would be quite unsuitable. (J. F. Kesper, Apparatebau, Dec. 7, 1934, pp. 269–70.)

● An improved design for molded toothbrush handles forms head and handle, ready fitted with bristle grooves and an enlarged neck (for strength), from molding powders of the phenol-formaldehyde resin type in a single molding operation. (A. F. Porter, British Patent 417,606.)

● Printing plates which have excellent properties of clear printing and durability are made by taking a molded impression plate from a relief or intaglio original, plating the molded plate with gold or other metal by cathode ray treatment, then electroplating with nickel or chromium. The mold is made with a non-fibrous Bakelite composition. After electroplating it may be used as such, or for making a second Bakelite molded plate. The plates may be curved to fit press rolls for printing, and composite plates can be made by assembling a number of the molds. (S. B. Chamberlain, British Patent 418,824.)

● A decorative plastic product is now made in rod form, for use in making a variety of ornamental articles. The rod is an assemblage of thermoplastic rods in different colors and in a desired pattern, for example grouped around a thermoplastic core which is an integral part of the color and pattern effect. The thermoplastic materials may be, for example, cellulose derivatives. The assembled bundle is enveloped in a thermoplastic jacket, also part of the color and pattern design, and the whole is heated under pressure to form a unitary solid rod showing the desired pattern in its cross section. (Albert T. Bailey, Dupont Viscoloid Co., U. S. Patent 1,994,164.)

● A new phonograph record of the flexible type is made with a paper core which is impregnated with a urea resin; to both faces of this core a nitrocellulose layer is applied, and to both faces of the resulting blank there is added a top layer of a non-flammable cellulose ester. Thus, in a laminated article of five layers, a record is obtained which has a reinforced but flexible base, a plasticized nitrocellulose body and a non-flammable, durable playing surface. (Samuel Whyte, Radio Corp. of America, U. S. Patent 1,997,398.)

● A hard, heat-resisting, acid-resisting surface is now applied to molded insulators and like electrical apparatus, whether in synthetic resin shapes or in porcelain or the like, by metallizing the surface of the molded article with a metal which forms a carbide (preferably chromium), then carburizing the metal on the surface by heating in presence of a gas which is decomposed by heat to liberate carbon. The gas may be acetylene, or natural gas or the like. The metal carbide film which is thus formed on the surface of the molded article is extremely hard and resistant to heat and chemicals. (Erich F. Kruppa, Deutsche Edelstahlwerke Aktiengesellschaft, French Patent 742,282; also British Patents 409,718 and 409,719.)

● The transverse stripe effect in fountain pen barrels, in which alternate stripes are transparent and the remainder opaque or nearly so, is efficiently and economically obtained by forming a laminated block of celluloid, with the layers alternately transparent and opaque, and boring out the pen barrel tubes. As an alternative method of forming the tubes, the block may be sliced and the slices may be wound on a mandrel, the edges being then joined by means of a solvent such as celluloid. (F. B. Dehn, Parker Pen Co., British Patent 420,466.)

● An applicator for rubbing liquid deodorants on the skin is molded from a synthetic resin molding powder with wood flour filler and is arranged to be frictionally held in the bottle neck. The treatment face is polished. The closure for the bottle is preferable also made of a like molded composition, in the form of an outside screw stopper. (W. R. Warner & Co., Ltd., British Patent 420,342.)

● Although molded plastic tableware is not so breakable as glass or china, some protection is desirable, especially when it can be economically incorporated in the ornamental design so that the purpose is not immediately apparent. In bowls and like dishes, for example, this is accomplished by forming decorative peripheral ribs of greater wall thickness than the remainder of the dish. When the dish has vertical sides the ribs may be placed as best suits the appearance of the article, with due regard to the best protective effect. On curved sides, placing the rib or ribs at the region of maximum curvature is favorable both to design and protective effect. (H. S. Dudson, Dudson Bros., Ltd., British Patent 420,842.)

● Inductance cores for high frequencies in the radio broadcast range can be formed from silicon iron, which has excellent electrical properties for the purpose, by using rounded particles of the metal in the particle size range from 0.0000005 to 0.0006 cu. mm. The preferred binder for making up compressed cores from these fine particles is nitrocellulose of a high viscosity; this material has the advantages of low dielectric loss and high shrinkage. The permeability of the cores can be controlled to some extent by varying the pressure during molding. (H. Vogt, British Patent 420,358.)

ZIPP

goes another custom!

THE "zipper," that marvelous little gadget that literally sews its own seam as you slide it, has become so familiar in its myriad applications that few of us realize how recent an invention it really is. Yet it is only within the last two decades that the button and hook-and-eye people have had anything to worry about and only within the last ten years that the truly amazing "zipper" progress has been achieved. Today, though a full itemization of "zipper" applications would be both impossible and needless, they range from corsets to brief cases, from slip covers to bathing suits.

In only one field—and for one reason—have these handy gadgets lagged in progress. Because of their metallic construction and standardized appearance they were not decorative. Their undisguised use in such items as pocketbooks, sportswear, shoes, bathing apparel and similar style merchandise has been retarded.

Many manufacturers sought to get around this limitation by so attaching the fastener strip as to hide it from view when the article is in use. Others preferred to do without its advantages and thereby avoid its defects in favor of the more decorative button.

Now, however, plastics promises to overcome this one retarding influence—to provide, through color, the decorative note that will make the "zipper" an integral part of the design of the merchandise it serves. In the United States, the Hookless Fastener Company has done much work in the development of plastic Talon fasteners of this type, while in Great Britain, Lightning Fasteners, Ltd.—a subsidiary of Imperial Chemical Industries, Ltd.—has produced plastic fasteners and applied them to a growing number of uses, several of which are here illustrated.

Both here and abroad—the mechanical features of the plastic "zipper" closely follow the standards set by its metal predecessor. A pyroxylin slide fits two series of small pyroxylin pieces into each other in such a manner as to provide a tight seam between the two flexible surfaces joined. In the British instance, the plastic fastener is sufficiently strong to withstand a direct lateral strain of seventy pounds per inch—in which respect it compares favorably with the lighter metal

types, although heavier duties can be better performed by the metal fastener. Style applications, however, seldom require resistance to any great strains, and the strength of plastic zippers is ample.

The essential difference therefore resolves itself into one of color, where plastics stand head and shoulders above metals. The constant rubbing action involved in the working of the fastener precludes the painting or enameling of metal. With pyroxylin, on the other hand, color runs all the way through each piece and no amount of wear will disturb the original color scheme.

Such colors are available in an almost unlimited range and, wherever desirable, any fabric can be matched for color by the fastener. The likelihood, however, is that a group of colors in a gradually expanding range eventually will be carried as stock items for purposes of economical manufacture. Since decorative possibilities depend more on contrast than on color matching, this should not prove a handicap.

Further possibilities for decoration are found in the fact that colors can be paired or otherwise grouped within a single fastener. The unit consists of five parts —two strips of tape which are sewed to the surfaces to be closed, two rows of plastic "teeth," and a slide. Thus, as many as five different colors might be had in a single fastener. So vast a number of colors is not likely to be called for, but the permutations possible with even two or three colors to a "zipper"—postulating nine standard or stock colors available—run into the thousands and promise an infinite variety of interesting effects.

At the present time, certain mechanical limitations exist which tend to limit the number of probable applications. Chief among these is the fact that pyroxylins—being thermo-plastic—cannot come into contact with a hot iron, cannot be boiled or otherwise heated without damage. Secondly, somewhat greater wear is present in the case of pyroxylins than is common when metals are used and the "zipper" has a shorter useful life.

Notwithstanding the above, there remain a wide number of applications to which the new type of fastener can be put in its present stage of development, items such as purses and shoes, cases, tennis-racquet bags, etc., coming readily to mind. It is quite possible that thermo-setting plastics will soon be fabricated at a sufficiently low cost to permit their use on garments going frequently to the tub.

SORRY

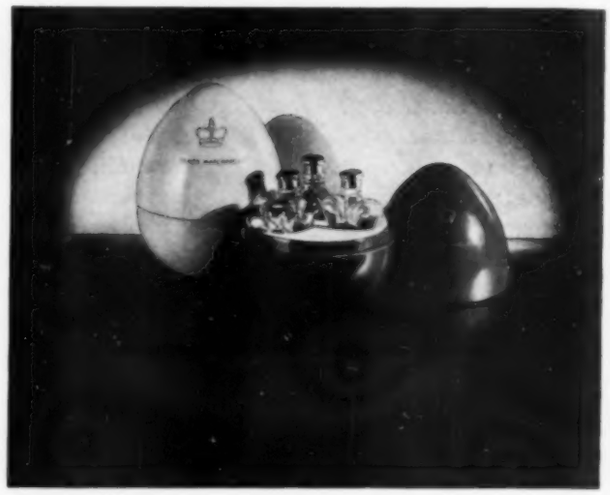
WE regret misspelling "Glyptal" in the summary of an article on "Plastics—The Future and the Chemist" in our March, 1935, issue. The resins which the General Electric Company make and sell under its trade name "Glyptal" are generally of the class known as alkyd resins and should have been referred to as such.—EDITOR.

THIS MODERN EGG HAS A PLASTIC SHELL

A thoroughly modern material, molded urea, was chosen this year to perpetuate a custom centuries old. For years immemorial rabbits, flowers and eggs have been as symbolic of Easter as Santa Claus has been of the Christmas Season. Each year we have witnessed new ingenuity in the production of these associations which are connected with that festival.

Perhaps there is no field in which application or development of such reminders is more apparent than that of packaging. Containers of every type, as well as wrappings, annually make their appearance, more attractive and more ingenious than the year before, to bid for the consumer's acceptance and tally up new sales records for the products which they carry. The possibilities of the "seasonal appeal" that may be incorporated into such packages seem to be unlimited.

Of the several to be found on the market this year, one of the most outstanding is that which is being used by the Prince Matchabelli Perfumery, Inc. As may be seen in the accompanying illustration, this attractive container—molded of urea in each of five colors: white, blue, green, red and yellow—conceals, in 1-dram bottles, three of the now famous crown containers of that establishment. The perfume fragrances which may be selected are: Duchess of York, Princess Marie, Ave Maria, Princess Norina and Queen of Georgia. It was the intention of the late Prince (*Continued on page 63*)



Matchabelli's Easter Egg Package appropriately molded of colorful ureas

(*Continued from page 26*) between the various keys, three colors are here used, black, white and a reddish brown. Finally, the molded pedal blocks are in black.

Credit: To Chicago Molded Products Corporation, for molding.

To Toledo Synthetic Products, Inc., for Plaskon used in molding white keys.

To Bakelite Corporation for Bakelite used in molding black and brown keys.

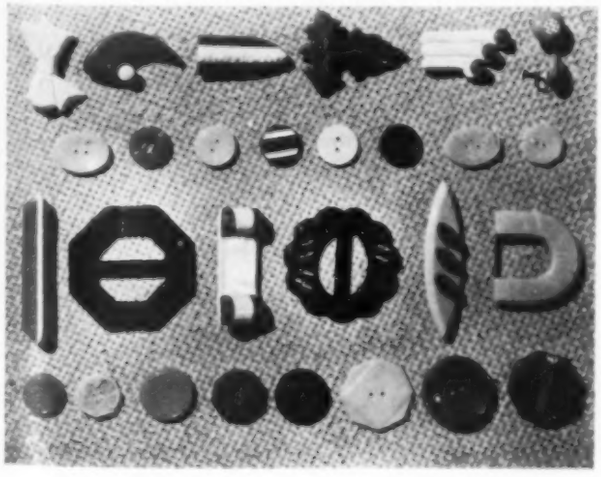
WHAT'S IN A BUTTON

(*Continued from page 38*) Chemical treatments are sometimes used also to increase luster.

Much casein and nitro-cellulose and a still larger proportion of the cast phenolics are made up originally in the color desired by adding pigments or dyes in the various batches as the plastics are produced. When this is done the color permeates the entire material and is the same inside as on the surface. Perhaps half the casein and a smaller proportion of the other two materials are made up in a natural color or in colorless forms which can be dyed as required to match or harmonize with various fabrics after the button is fabricated. This enables the manufacturer to make up standard sizes and shapes of buttons and buckles for stock and to dye them as different colors are demanded by purchasers. Some casein buttons are dyed in mottled effects to resemble horn or shell.

Since the machining of buttons from casein, nitro-cellulose and cast phenolics is done mostly with standard tools and special dies are rarely required (except inexpensive ones, in some cases, for blanking from sheet stock) there is no heavy expense for tools (or molds) and it is often feasible to produce novelty buttons in special shapes and sizes which would not be the case if a large expense in molds were required.

Machining is done, as a rule, on fast specialized machines in which the production rate is high. Many of the machines are completely or semi-automatic and require relatively little labor so that machining costs are low. When proper care is exercised holes will be

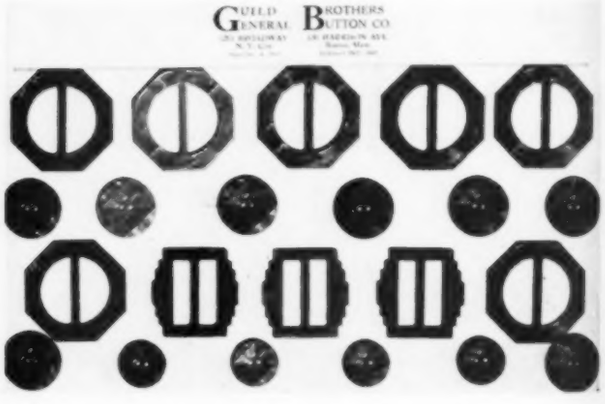


drilled uniformly and in proper size with correct and uniform spacing so that machine sewing is readily done. Holes will also be properly chamfered and smooth so as not to cut the thread. Carelessness in setting the machines properly or in failing to keep tools adjusted and sharp may result in imperfections. Very fancy buttons may require some hand carving or other skilled operations which result in increased cost as well as in unusual effects not easily duplicated otherwise.

The second method of producing buttons is by molding. In such work the molding phenolics, such as Bakelite, Durez, Resinox, Textolite and Makalot, and the urea plastics, including Beetle, Plaskon and Unyte, are the chief materials employed. Some furfural resins are used and cellulose acetate, such as Lumarith, Masuron and Tenite, has also been employed to a limited extent. Use of such materials involves, first of all, the manufacture of molds which are rather expensive but from which rapid production is possible. Molds usually have fifty or more cavities, each of which forms a button, and as the cavities can be filled and the molding done in about two minutes per charge, the production per hour is quite high. Because of the expense of the molds, however, these are rarely made unless a large output for a given design of button or buckle is assured.

In making molded buttons, the material is subjected to heavy pressure and considerable heat. Uniformity in the resulting product depends upon maintaining a uniform temperature and pressure in the molds. In some instances slight changes in color, especially, result from fluctuations in temperature.

In general, the powders employed in molding are ob-



tained ready for use from the manufacturers but some of the large button molders mix the color with the phenolic resins themselves and one reports using ninety different colors. Molding leaves a thin flash of the molding material around the periphery and in the holes of the button and this must be removed. Otherwise sharp edges remain. On buttons with a bead at the edge, the fin must come in the center of the bead and, when it is removed, a fine line of unpolished material may show at this point, especially in the case of black buttons when they are not very black all the way

through. If the mold is highly polished, the button comes from it with a high luster, but some polishing of the buttons is done, in certain instances, chiefly to remove fins and fin marks.

Since in button molding there are fewer operations than in machined buttons, and since there is less waste of material and the material itself is generally less expensive, the molded button is usually less expensive. It does not follow that it is inferior in quality. It may even be superior in some respects, depending on which materials and which qualities are compared. As to appearance and finish, tastes differ, but it is true that some of the machined buttons are available in colored effects and transparencies not available in the usual molded button (except acetate) and often command a higher price. Also, because the molded button involves considerable investment in molds and is usually made in large quantities, it may lack the individuality of machined buttons made in smaller lots.

Turning now to consideration of specific types of materials, casein may be mentioned first, as it was one of the earliest plastics to replace natural materials and still sees extensive use even though it has lost ground in recent years. In Europe casein is known mostly as Galalith and Erinoid, though it is sold under other trade names. The European names persist to some extent in this country, especially Galalith, but Ameroid and Aladdinite are among the most widely used American casein products. Casein itself is a product derived from skimmed milk. After forming into sheets and rods, it is hardened by the action of formaldehyde in which it is left to soak. This treatment requires from three days up to several months depending on the thickness of the material treated. For this reason, buttons and buckles are made chiefly from sheet stock which, being thin, cures more rapidly than rods of large diameter. The Aladdinite Corporation has developed a process, however, of cutting button and buckle blanks from uncured sheet and rod and subsequently curing these blanks before they are finished. Some other makers follow a similar practice. This speeds the curing operation and effects economies in material. After curing, the operations are similar to those in other machined buttons.

Casein is made in virtually any color, is easily and quickly dyed, and is available in translucent, transparent and opaque forms. Mottled effects are produced by compounding two or more colors or by a system of spray dying which simulates horn and other mottled effects. Machining is easily done and the material takes a high polish either by chemical treatment or by mechanical means. After heating, some simple forming operations can be performed, but most shaping is done entirely by machining and forming under heat is rarely done. Casein is often substituted for horn and in some cases has displaced pearl buttons on underwear. As casein absorbs considerable water, cracking, splitting and warping has sometimes been encountered in laundering garments with casein buttons, and crocking has been reported, as well as some

fading under adverse conditions. In general, however, home laundering is satisfactory and for most colors, dyes properly selected and applied are sufficiently "fast" to meet ordinary requirements. Many casein buttons are used on suits and coats for both men and women and colored buttons are employed on wash and other dresses, chiefly in the lower price ranges. As a rule, casein is not recommended for buttons on garments likely to be boiled or subjected to strong washing solutions, as this is apt to result in crocking or other faults. Casein is non-inflammable.

Nitro-cellulose, marketed under such names as Celluloid, Pyralin and Fiberloid, has seen extensive use in buttons, but its use for this purpose has been much restricted in recent years, chiefly through the advent of less expensive materials, notably the cast phenolics. Partly for this reason several makers of nitro-cellulose have taken up the production of cast phenolics. But the latter are made also (and in larger quantities) by specialists in this type of resin. Many buckles and slides are still made from nitro-cellulose which is available in beautiful laminated and mottled effects, and some in pearl-like effects not available in other plastics. The material is easy to work and is often shaped or stretched in thin sheets over backings of metal and other materials. Cementing is also easily accomplished. Application of boiling water softens the material but it can be washed without injury at lower temperatures if care is exercised. Nitro-cellulose is inflammable and should be manufactured and stored, as well as used, with due regard to the hazard involved.

Molding phenolics have gained wide use in button manufacture partly because they are the oldest as well as the least expensive of the modern synthetic resin plastics and have many excellent properties. Phenolics are easily molded with a high luster and come in a wide range of colors. The lighter colors require considerable pigmentation to mask the yellowish resin and are sometimes subject to fading or discoloration. Light colors are also sensitive to variations in molding temperature which are rather hard to avoid, and this makes it somewhat difficult to match buttons and buckles of this material. As yet the molding phenolic materials suitable for buttons are available only in opaque forms which do not have the depth and intensity of color associated with other plastics. Blacks, however, are excellent and many of the dark colors also give splendid results. Molded phenolic buttons are employed extensively on sweaters, trousers, work shirts, windbreakers, lumber jackets and on suits and overcoats. When properly made, the phenolics wash and clean well.

Since their introduction, molding ureas have gained a firm place in the button field. Their chief advantages include their availability in light translucent shades which afford depth and intensity of color that is comparatively unaffected by fading; short curing time, good strength and ability to meet boiling and pressing tests. Molding can be done without flow marks and with less sensitiveness to temperature than with some

other materials. The white ureas are the whitest available among the molding button plastics and are close to pearl in this respect. Ureas are next above the molding phenolics in the cost scale and, in general, are somewhat below the casein plastics. Recent developments have improved their translucency and they give every evidence of still wider use in the button field. Care must be used to avoid spotting with dirt in handling and molding urea compounds.

Button purchasers who are not familiar with the difference in cost between the phenolic and urea materials used more generally in molding, respectively, the darker and lighter shades of buttons, sometimes find it difficult to reconcile the difference in cost of these buttons with comparative figures on casein buttons which are about the same in white as in dark colors. One large molder of both phenolic and urea buttons complains that this has resulted in considerable loss of volume in white urea buttons which have come into sharp competition with low-priced casein. At least one of the largest button jobbers thinks very favorably of ureas as button materials and indicates that less trouble is encountered in matching colors than with some other materials.

Another material which has gained wide and rapidly increasing popularity for button manufacture is the cast phenolic produced as Catalin, Marblette, Ivaleur, Ronyx, Bakelite (cast form), Catalazuli, Ivorloid and Fiberlon. These materials have the important advantage of an unlimited range of colors which can be had in extremely beautiful transparent, translucent and opaque forms as well as in equally beautiful mottled effects. The water-white and the clear tinted transparents are not available in any other material at the same price (with minor exceptions of certain colors in casein) and some of the mottled effects produced are also exclusive in this material. There is also a large demand for the translucent and for some opaque colors made in cast phenolics, partly because these have unusual beauty and depth of color and are available in convenient forms (rod, sheet and tube) for conversion into buttons, slides, buckles, clips and many other related items for costume decoration. A process has been devised whereby Ronyx having a mother-of-pearl effect can be supplied.

Aside from their beautiful colors, cast phenolics take a beautiful polish, have ample strength, wash well and are as nearly permanent in color as are most other materials dependent largely upon aniline dyes for their color. Though fading has been encountered in some cases and some difficulties in matching colors are reported, these are not, or need not be, factors of importance if proper care is exercised by the makers and fabricators of the materials involved. As with all transparent colors, the apparent depth or intensity of color varies to some extent with the thickness of the piece, hence a relatively thin buckle and a much thicker button, for example, though made from the same batch of material, may not seem to match when viewed in transmitted light. On the other hand, when

matching is essential, it is best to order the entire quantity of material from one batch, as there may be slight variations in batches made at different times. As with most other materials, if attempts are made to secure molding materials from different makers, variations in tint are likely to occur. Since mottled effects depend largely upon hand mixing and suspension of a pigment in a clear liquid resin during the manufacturing process, some variations are inevitable. Nevertheless, a surprising degree of uniformity in mottled forms is obtained, especially within a given batch.

Some types of clear crystal cast phenolics can be dyed in almost any color and, when matching by other means proves difficult, it can be accomplished in this way. It is also possible to make up stock buttons in clear material and dye them as required in particular colors. Since the dye does not penetrate through the material (as it does when dyeing of the whole batch is done while the resin is in liquid form, which is the usual procedure), carving done on a dyed piece may cut through the dyed surface and give a pleasing two-color effect. In the case of certain delicate colors, heating above a certain temperature may have an effect upon the color of a piece, and this should be taken into consideration, where color matching is important.

Some buttons have been and still are produced from cellulose acetate. As the cost is higher than for cast phenolics, on a pound basis, however, applications are somewhat limited. The material can be had in sheet and rod form and is quite easy to machine. It can also be had in powdered form and can be molded readily with practically no waste. Acetate is also well suited to injection molding at a rapid rate and, as this process is further developed, acetate may be applied more widely in button manufacture. Acetate buttons are strong and take a high polish. Appearance is similar to cellulose nitrate but the material is slow burning and involves no fire hazard. Colors are unlimited and may be transparent, translucent, opaque or mottled.

As will be seen, several of the plastic materials can be made to resemble glass. They are more expensive than glass but are better suited for button manufacture, because of their freedom from breakage in handling and service.

Many efforts have been made to substantially duplicate fresh-water and salt-water pearl buttons in plastic material. Some efforts in this direction are continuing and give promise of success. If this is achieved in a material of such cost and character that the product is less expensive than pearl, another wide field for plastic buttons will be opened. Natural pearl is not only hard to work but results in many "seconds," as well as in much waste material, high cost in sorting and much breakage in use. Nevertheless, pearl is still used in large quantities. A satisfactory and inexpensive substitute would be a great boon to the button manufacturers and to consumers.

Horn and vegetable ivory, the latter made from a tropical nut, are still being used but both have found competitors in plastic materials. Horn is a by-product

of the packing industry available at moderate cost and is made into good buttons at moderate prices. Nevertheless, casein, itself in part a by-product of the dairy industry, offers sharp competition with horn, and some of the other plastics do likewise. A little further lowering of the costs of plastics, which is likely to come about as their total production increases, will still further restrict or may eliminate natural button products.

Although user satisfaction with plastic buttons as now produced is far from complete, it is on a par with that in other plastic applications. There are, however, opportunities for improvement. As a rule, strength is adequate, though in some cases buttons and particularly buckles and slides are made a little too thin and leave the customer with a feeling that breakage may occur even if strength is really adequate. Colors give more trouble, perhaps, than any other single item. This applies not alone to matching but to fading and sometimes to crocking. In these respects, buttons are not much different from fabrics. Exact matching of colors is difficult and there is said to be no such thing as a dye which is absolutely free from fading. Pigments are somewhat the same in this respect. All careful manufacturers of plastics do their best in this regard and are gradually minimizing difficulties through selection of the best dyes and pigments available and by careful control of their application to the plastic. If button manufacturers are careful in the control of their processes and in using plastics from the same batch, so far as practical, when matching colors are required, conditions will be further improved. Large purchasers of buttons can help by placing orders in bulk so that large purchases of plastics uniform in color can be made, and also by paying a fair premium for the merit of uniformity. If the last farthing is exacted in price or if, in other words, price is made the chief consideration, the button manufacturer may be forced to buy his materials on a similar basis, perhaps not getting complete lots that should match from the same source, with the result that color and quality may vary.

Some purchasers give buttons a boiling water test in which no crocking, color change, softening, cracking or warping may occur. Not all plastic buttons will stand such a test without deficiency and others will pass it. Not all need do so, as they are not subjected to such conditions in service. Buttons on garments that are to be laundered probably should pass this test. Some buttons will not withstand dry or steam cleaning or steam pressing. If a clothing manufacturer thinks they should do so, he should see that samples are tested. This is done in some cases but often the matter is left to the cleaner who usually removes the buttons if he questions their ability to stand up.

In general, carefully made buttons have holes without sharp edges and enough stock around the thread so as not to pull out or break when pressed or in normal use, but inspection to cover these points is desirable. Of course, plastic buttons are not alone in showing some of the shortcomings mentioned. It is prob-

able, however, that they average higher in this respect than buttons made from most other materials.

It is certain that the style and design of many plastic buttons could be improved by more attention from experts in this field. This need not necessarily increase cost and might well lead to greater profit, especially by lifting some buttons out of the "staple" classification, where purchase is quite largely on a price basis. Some observers foresee a debasing of the higher grades of plastic unless they are so styled and so priced as to keep them out of competition with the cheaper staple products. Casein and molded phenolics already seem to have suffered to some extent on this score and the same may be true of other types. It is difficult, of course, to revive materials as style items when they have been produced in forms so cheap as to become too commonplace.

Makers of plastics used in buttons have not succeeded very generally in getting the trade names of their respective products known so that they are specified by button purchasers. Galalith, Catalin, Unyte and Bakelite are among the names known and seen in catalogs dealing with buttons, but they are often applied without discrimination to other materials having similar appearance. Efforts to bring about recognition of distinctive makes might well be helpful to all concerned.

Many who have studied the application of plastics to the button field may be surprised at the extent to which they are employed. With further research and proper handling, plastics may well gain a virtual monopoly of the button business, but if this is to be accomplished with profit to all concerned, care in avoiding too great a cheapening of the product or overproduction of plastic buttons should be guarded against.

DO DESIGNERS KNOW WHY MOLDING COSTS ARE HIGH?

(*Continued from page 21*) reduce the cost of finishing.

Molding materials, just as other raw materials like iron and steel, shrink after they are molded. A heavy section tends to shrink more than a thin section, because of its greater mass. A combination of thick and thin sections should be avoided wherever possible (Fig. 5), because unbalanced stresses will set up, due to variation in shrinkage between the sections. This will cause the molded piece to warp or distort.

"Another difficulty, which is fairly common," reports S. I. Howell of the Mack Molding Company, "arises from a design of two pieces which are to fit together. Designers lose track of the fact that there is a variance in shrinkage of colored plastic materials."

Radii or fillets should be used in place of sharp corners wherever practical. This does not apply, however, where the fin or parting line of the piece is involved. Such corners should be left square so that the finishing operation will be simple and will in no way affect the

finish of the piece (Fig. 6). Fillets generally simplify mold construction and consequently reduce the cost. They also tend to strengthen the mold and the molded piece wherever used.

Often a sharp corner on a molded piece will require a great deal of handwork in some obscure section of the mold, whereas a fillet may be produced easily with a machine cutter. Shell-like wall sections around inserts should always be avoided because cracking will undoubtedly result, due to the difference in the coefficient of expansion between the molding material and the metal inserts.

Since the fundamental motion of the mold is down and up, side holes and deep undercuts can be created only by the use of split molds, removable pins, sliding bars, or plates, which are drawn from the mold with the work and later removed by the operator (Fig. 7). While this construction is perfectly possible and practical, it is expensive. Many times, less complicated designs serve just as well.

Don't specify dimensions closer than .005″, plus or minus, unless really necessary.

Don't overlook the fact that metal inserts may be securely imbedded during the molding operation, thus eliminating subsequent assembling. They should not be placed too near the edge of the object being molded (Fig. 8). The piece should be designed so that the insert can be anchored firmly in the mold during the molding operation. It is well to have the cross section circular. In this way the molding material will not flow over the insert and necessitate a special cleaning operation when the piece is finished.

When permissible, interior walls and cavities should be made with a slight draft, say .015″ per inch.

When lettering is required, it is easier and cheaper to engrave or sink the letters into the mold, so as to produce relief lettering on the molded piece. The opposite effect requires raised letters in the mold, which are expensive to make (Fig. 9).

It is not economy to stint on the amount of molding material to be incorporated in a molded piece. Parts with very thin walls will be fragile and their production will be difficult. Some concerns believe that they can save by decreasing the amount of raw materials used in the molding of a product. This is not true, because as rejects increase so do molding costs.

Finally, all conditions under which a finished part will operate should be determined. These include electrical, chemical, and mechanical. Many manufacturers have encountered failure because the wrong molding material was selected for the molded piece. Just as there are many types of steel for a diversity of uses, so there are many plastic materials for a variety of applications. It is not necessary, however, that either designers or manufacturers be thoroughly familiar with the thousands of molding materials and their individual characteristics. The molding material manufacturer and the molder will recommend the proper material for each molding job.

Looking Backward and Forward

(*Continued from page 16*) There is a wide gulf between the iron crane, sooty brass kettles and iron trivets of Pilgrim days, and the chromium percolator, automatic toaster, metal servers and utensils used in the modern home. The gulf when measured in convenience of service is equally wide. The period of time during which the most rapid strides in design have been made is unbelievably short and it is fortunate for both that plastics and design have shared this period of development alike. They are limited only by the vision and imagination of those who can put them to the best use.

In restyling the Manning-Bowman line, Mr. Ackerman began with the chafing dish and percolator. His progress is illustrated by photographs with this article. He believed that people were tired of plain metal, and things with brass handles and copper knobs and began using plastics in their stead. He learned by experience that the American public likes red and green plastic handles and knobs, yet shys away from those of yellow and blue. Ivory and white have been increasingly popular during the past two or three years, and black is accepted as standard wherever it is used. Plastics have given to modern furniture and utensils the feeling of lightness that people want. It sacrifices nothing in strength. It wears well and does not easily scratch or mar.

Restyling the percolator and chafing dish did things to Manning-Bowman sales which encouraged them to undertake to restyle their entire line of more than two hundred items. In addition to restyling standard utensils, a brand new line of Giftwares, of Mr. Ackerman's design, has been introduced with encouraging success. Changing habits have brought about a keener appreciation of the niceties of entertaining which in turn has created a considerable demand for distinctive table decoration and the proper electrical equipment to go with it. Repeal has opened a wide market for decorative trays and buffet serving dishes in keeping with the spirit of the times. Midnight snacks are no longer drab and colorless affairs with haphazard service. They demand chic and smartness for success, and our modern hostess searches the shops for that which is new. It is a healthy sign of improved conditions and no small measure of its credit should be attributed to industrial design, and to the new uses of suitable materials which have been combined to assure its success.

Mr. Ackerman predicts that within our generation kitchens will become so scientifically clean and efficiently arranged that they will somewhat faintly resemble a hospital. The main distinction will be in the choice of color. Kitchens will be gay and cheerful with none of the austerity of hospitals, yet they will sparkle and shine in sanitary attire. Plastics, because they do not absorb odors, will become important materials in the construction of such kitchens. The fact that they do not easily mar will recommend their use in wall surfaces. They will clean easily and never need refinishing. Their cheerful and brilliant colors will lend themselves to subtle schemes of decoration.

Because they do not chip nor peel, plastics will be used in place of porcelain and metals for table tops. They will never be cold to touch. Here again, they are easily cleaned and colors are right to make them both sanitary and gay.

He believes, too, that plastics have a tremendous future in architecture and that they will replace outmoded materials in hardware, trim, door knobs and the like, especially in buildings of modern design which need such contrasting material to shock us out of the feeling that all modern design is too plain and too blank.

He does not feel that we have reached the zenith of modern design. It is bound to change but it still will be modern. Design from older periods will be simplified and brought up to date. French Provincial and other furniture is already being revised to the 1935 manner of living. Industrial Design must keep its pace to meet these new demands created by such changes. It is this human consciousness that we are still alive and the inherent desire to do things and go places that will speed recovery. Manufacturers who have the courage to cater to these demands and the vision to interpret them into attractive and practical merchandise will be the first to feel its effect.

The April issue of *Monsanto Current Events*, issued by the Monsanto Chemical Company, is now available for distribution. Among items of interest to the plastics user is an article on plasticizers. Copies may be obtained by addressing the Advertising Department, MODERN PLASTICS.

"GIVE US FACTS" says Kahn

(*Continued from page 13*) Mass housing presents a far more important market for synthetic plastics than those now being developed.

"It would seem that something vital is involved in the elimination of wet work in building where water and moisture plays a part. We know that plaster is merely a survival of an old system of daubing mud on sticks or stones to develop protection from the elements. Wood, as we use it, presents the difficulties of shrinking, warping, and cracking due to moisture during construction with plaster and concrete. Paint adds another problem since one must wait until surfaces are dry enough to hold the paint. Furthermore, additional absorption of water in a wall either through faulty construction or leakage of one type or another means repainting. Equally obvious is the fact that any painted surface collects dust, grease, and dirt demanding frequent reconditioning. In the attempt to eliminate these hazards, many materials are coming on the market which have beautiful surfaces and colors that can be adapted to whatever schemes the designer wishes. What disturbs him so often is the fact that complete information is not submitted along with the materials. The designer has to weed out impossible colors, textures, and

what are intended to be decorative effects; he must work out systems of construction, and watch out for practical objections that he knows, through experience, will develop, once the coordination of his structure is in his hands.

"The present character of architectural training in the schools presents an opportunity for educational propaganda. One criticism that, with full gravity, has been directed toward these schools is that the student has little time or opportunity for direct contact with his eventual repertoire of materials. He designs on paper, and apart from theoretical instruction in the use and virtues of various substances, finds himself extremely vague when he is plunged into actual work. In cognizance of this fact, one group of manufacturers is accomplishing something definite that is both sound promotion and sound education with a large body of students. It is pertinent to relate briefly what the Illuminating Engineering Society is doing.

"The Beaux-Arts Institute of Design issues programs to architectural schools throughout the country. The problems are submitted to New York juries of practicing architects after they have been judged and reduced to superior rankings by local juries. Many hundreds of drawings thus come to New York.

"The Engineering Society some years past arranged to have one of the major problems of the year prepared so that illumination would be the important feature of the design. The programs as printed, present data to the student covering technical information particularly fitted for the immediate study. Local engineers are instructed to consult with the students. Prizes offered to students by the Engineering Society have helped to maintain a very unusual amount of enthusiasm as well as the production of fresh, well-reasoned designs as beautiful as they are practical. Incidentally the juries themselves derive both information and stimulation.

"It would seem possible and desirable that other groups, such as those interested in synthetic plastics, might envisage a scheme whereby a coming generation of designers would be informed of their materials and have some experience in handling and studying them."

So much for Ely Kahn's reactions as a practical architect to the necessity for and nature of possible promotion of synthetic plastics. His reaction as a designer, modernist and educator is equally pertinent.

"Once one has accepted the principle that new ideas or new substances are admissible, it is important to determine whether the materials are to be considered as substitutes, adjusted to designs developed for specific items such as wood, marble, plaster or glass, or whether the newer things are to be analyzed completely and fresh designs prepared to suit their specific requirements of manufacture and potentialities.

"There will be little progress if one insists that price alone can determine whether one uses one thing rather than another, assuming that the primary design remains unchanged. It is my belief that the public is extremely critical of fakes and that when a material is

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accepted merely as a price substitute, there will be a reversion, sooner or later, to the real thing. A designer, therefore, needs to understand the limitations involved in the manufacture of a product, as well as the adaptation of the material to current building methods and base his designs on these factors."

Considering the term modernist, Mr. Kahn would define it as one who approaches design directly and employs materials honestly with respect for their intrinsic qualities. In no sense of the word can he be accused of imitation—in fact, the whole conception is his *bete noir*. As he once put it, "The modernist uses his material so as to make it beautiful in itself. The problem of design simplifies itself to a matter of form contrast or proper use of materials, and demands particular study. 'Modernism' has nothing to do with it; the demand is for a rational interpretation of our own problems controlled by the good taste we possess. We have available materials, machines and opportunities that the world has never before seen. Modernism is something more significant than a set of mannerisms or a collection of adaptable design motives to which a label has been affixed. If real modernism consists of being alive, doing a job thoroughly by answering the problem in plan, material and design, and not driving a new requirement into an old shell—any honest designer must be a modernist.

"Our aim should be, not so much to create a new form of design but a decorative quality which can only be linked with the particular material involved..." Satisfactory modern designs cannot be made without an intimate knowledge of the materials on the part of the designer, for without it he will very often run counter to the nature of the material and even more frequently fail to avail himself of its possibilities.

"The public is definitely interested in color and modern design. Therefore it would seem wise for manufacturers of synthetic plastics to consciously develop the adaptability of their material to the trend in architecture and decoration rather than stress the imitative qualities it may possess."

BIG MOLDING—LITTLE COST

(*Continued from page 27*) was shock-proof; a finish more in harmony with present-day tastes in beauty-salon decoration and, finally, a surface less easily stained and more easily cleaned.

The peculiar construction necessitated by the nature and purpose of the instrument—in addition to the element of size—introduced a number of molding problems which, happily, were speedily solved. To facilitate assembly, the unit was molded in three sections—a conical motor housing, a central section supporting the motor and containing the passages through which the heated air is blown for drying, and a bottom section which is shaped to the head.

All three sections interlock to provide a smooth, continuous outer surface and—more important and more

difficult for the molder—to provide an equally accurate contour on the inside, where any unwanted projection would set up undesirable cross currents and impede the efficient operation of the dryer. This accuracy of fitting required extremely careful calculation of cooling shrinkages in planning the molds. As an instance, the shrinkage of the bottom of the motor housing part is far greater than that of the top of the next section into which it fits in spite of the equal diameters involved. This is because of the cross bridging in the second piece. Hence slight, but extremely accurate, differences in molding diameters were necessary to insure a perfect fit after shrinkage had taken place.

To provide further control of shrinkages, the molds were cored to permit chilling each molding, in the mold before ejection. This coring construction likewise reduced the molding cycle to little more than that of a small piece—although the greatest diameter here involved is well over twelve inches. This reduction of the molding cycle provides, naturally, a reduction in molding costs which goes a long way towards compensating for the extra mold-cutting work involved.

In assembly, the three sections with the motor enclosed, are locked together and supported by a pivot unit which carries the control switch. The stand holding the entire unit is made of heavy metal sections and is adjustable to any height.

Credit: To Mack Molding Company for mold design and molding.

THIS MODERN EGG HAS A PLASTIC SHELL

(*Continued from page 46*) Matchabelli, in the design of this Easter package, to so perpetuate an attractive Russian custom—that of providing a gift appropriate to the season.

Flattened at the base, the lower part of the molded "egg" rests firmly wherever it is placed. The individual bottles are inset in a die-cut, velour-covered collar or disk that forms the top of a paperboard shell or box that fits snugly in the molded section and holds the bottles firmly in position. On the cover, in gold, is impressed the insignia of Prince Matchabelli products. With the perfumes and the shell holding them removed, the molded container becomes a convenient re-use unit for many purposes. For protection, each egg is packed in an undecorated set-up paper box.

Here we have another instance of good merchandising in which the package, specifically designed, and created from appropriate molded plastic material, is used to create sales and build prestige for a line of products. The idea of the Easter egg is, of course, not new and in fact was used last year by the Matchabelli company. But in execution and in the materials used, the package is indeed modern, impressive and sales compelling. Responsible for its design and production is the Warner Brothers Company for whom Bryant Electric Co. did the molding.

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